



**Programm  
Electrical Engineering (Appendix 4)**

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## SEMESTER 1

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume					Number of Credits		Allocated Coefficients		Evaluation method	
					Course	DW	PW	F2F	HW	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S1	T.U.1: Fundamental sciences for engineers I	Advanced math I	Fundamental	Presential	15	15	0	30	23	2	7	2	7		x
		Numerical analysis	Fundamental	Presential	15	15	15	45	35	3		3			x
		Algorithms and programming	Fundamental	Presential	15	0	15	30	23	2		2			x
	T.U.2: Electrotechnics I	Electrical Grid I	Fundamental	Presential	15	15	15	45	35	3	9,5	3	9,5		x
		DC Machine	Fundamental	Presential	15	15	15	45	35	3		3			x
		Industrial electricity	Fundamental	Presential	15	0	15	30	23	2		2			x
		Tutored Project I	Fundamental	NOT Presential	0	0	22,5	22,5	15	1,5		1,5		x	
	T.U.3: Measurements and Systems I	Continuous Linear System	Fundamental	Presential	15	15	15	45	35	3	9	3	9		x
		Measurement and Instrumentation	Fundamental	Presential	15	0	15	30	23	2		2			x
		Analog Electronics	Fundamental	Presential	15	15	15	45	35	3		3			x
		Tutored Project II	Fundamental	NOT Presential	0	0	15	15	13	1		1		x	
	T.U.4 : Human Sciences and Corporate culture I	Introduction to economics and business management	Transversal	Presential	0	22,5	0	22,5	15	1,5	4,5	1,5	4,5	x	
		Communication Skills	Transversal	Presential	0	22,5	0	22,5	15	1,5		1,5		x	
English1		Transversal	Presential	0	22,5	0	22,5	15	1,5	1,5		x			
	<b>Total</b>				135	157,5	157,5	450	340	30	30	30	30		



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## SEMESTER 2

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume					Number of Credits		Allocated Coefficients		Evaluation method	
					course	DW	PW	F2F	HW	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S2	T.U.5 : Fundamental sciences for engineers II	Advanced Math II	Fundamental	Presential	15	15	0	30	23	2	8	2	8		x
		Probability and Statistics	Fundamental	Presential	15	15	0	30	23	2		2			
		Process Analysis	Fundamental	Presential	15	15	0	30	23	2		2			
		Objected oriented programming 1	Fundamental	Presential	15	0	15	30	23	2		2			x
	TU.6 Electrotechnics II	Electrical Grid II	Fundamental	Presential	15	15	15	45	35	3	7	3	7		x
		DC Output Converter	Fundamental	Presential	15	15	15	45	35	3		3		x	x
		Tutored Project III	Fundamental	Not Presential	0	0	15	15	13	1		1			
	T.U.7 : Measurements and Systems II	Sequential control of systems based on API	Fundamental	Presential	15	15	15	45	35	3	12	3	12		x
		Discrete linear systems	Fundamental	Presential	15	15	15	45	35	3		3			x
		Digital electronics	Fundamental	Presential	15	7,5	7,5	30	23	2		2			x
		Introduction to embedded systems	Fundamental	Presential	15	15	15	45	35	3		3		x	x
		Tutored Project IV	Fundamental	Not Presential	0	0	15	15	13	1		1		x	
	TU.8 Human Sciences and Corporate culture I II	English2	Transversal	Presential	0	22,5	0	22,5	15	1,5	3	1,5	3		
Entrepreneurial Culture		Transversal	Presential	0	22,5	0	22,5	15	1,5	1,5					
Total					150	173	128	450	346	30	30	30	30		



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## SEMESTER 3

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume					Number of Credits		Allocated Coefficients		Evaluation method	
					Cours	DW	PW	F2F	HW	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S3	T.U.9: Fundamental sciences for engineers III	Advanced Programming	Fundamental	Presential	15	0	15	30	23	2	5	2	5		x
		Operational research and Optimization	Fundamental	Presential	15	15	15	45	35	3		3			x
	T.U.10 : Electronics and microelectronics I	Microprocessor based Systems	Fundamental	Presential	15	15	15	45	35	3	6,5	3	6,5		x
		Data Acquisition and transmission	Fundamental	Presential	15	15	0	30	23	2		2			x
		Tutored Project V	Fundamental	Not Presential	0	0	22,5	22,5	15	1,5		1,5		x	
	T.U .11: Signals and Systems I	Optimal filtering	Fundamental	Presential	15	15	0	30	23	2	8	2	8		x
		Signal processing	Fundamental	Presential	15	0	15	30	23	2		2			x
		Process Analysis and Identification	Fundamental	Presential	15	15	15	45	35	3		3			
		Tutored Projet VI	Fundamental	Not Presential	0	0	15	15	13	1		1		x	
	T.U.12 : Electrotechnics and power electronics	AC Machine	Fundamental	Presential	15	7,5	7,5	30	23	2	6	2	6		x
		Electronic Commutation	Fundamental	Presential	15	7,5	7,5	30	23	2		2			x
		AC Output Converter	Fundamental	Presential	15	7,5	7,5	30	23	2		2			x
	T.U.13: Human sciences and engineering culture III	English3	Transversal	Presential	0	22,5	0	22,5	15	1,5	4,5	1,5	5	x	
		Problem Solving and Decision Making	Transversal	Presential	0	22,5	0	22,5	15	1,5		1,5		x	
		Quality Management & Improvement	Transversal	Presential	0	22,5	0	22,5	15	1,5		1,5		x	
Total					150	165	135	450	339	30	30	30	30,5		



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## SEMESTER 4

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume					Number of Credits		Allocated Coefficients		Evaluation method	
					Course	DW	PW	F2F	HW	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S4	T.U.14: : Fundamental sciences for engineers III	Database	Fundamental	Presential	15	0	15	30	23	2	4	2	4		x
		Programmable logic system	Fundamental	Presential	15	0	15	30	23	2		2			x
	T.U.15 : Electronics and microelectronics II	Embedded operating system	Fundamental	Presential	15	0	15	30	23	2	9,5	2	9,5		x
		microcontroller systems	Fundamental	Presential	15	15	15	45	35	3		3			x
		Local networks and communication for embedded systems	Fundamental	Presential	15	15	15	45	35	3		3			x
		Tutored Project VII	Fundamental	Not Presential	0	0	22,5	22,5	15	1,5		1,5		x	
	T.U .16: Signals and Systems II	optimal control	Fundamental	Presential	15	7,5	7,5	30	23	2	7	2	7		x
		nonlinear systems	Fundamental	Presential	15	15	0	30	23	2		2			
		Digital and analog controller synthesis	Fundamental	Presential	15	0	15	30	23	2		2			
		Tutored Project VIII	Fundamental	Not Presential	0	0	15	15	13	1		1		x	
	T.U.17: Intelligent technologies	Artificial intelligence	Fundamental	Presential	15	0	15	30	23	2	6	2	6		x
		Image processing and machine vision	Fundamental	Presential	15	0	15	30	23	2		2			x
		Digital simulation techniques	Fundamental	Presential	15	0	15	30	23	2		2			x
	T.U.18: Human sciences and engineering culture IV	English4	Transversal	Presential	0	22,5	0	22,5	15	1,5	3,5	1,5	3,5	x	
		Study tours	Transversal	Presential	0	15	0	15	13	1		1		x	
Leadership and communication		Transversal	Presential	0	15	0	15	13	1	1		x			
Total					165	105	180	450	346	30	30	30	30		

## SEMESTER 5 (+2 Optional Modules)

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume					Number of Credits		Allocated Coefficients		Evaluation method	
					Course	DW	PW	F2F	HW	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S5	T.U.19 : Controls and Systems	Adaptive Control	Fundamental	Presential	15	15	15	45	35	3	8	3	8		x
		Embedded Systems Diagnostics and monitoring	Fundamental	Presential	15	0	15	30	23	2		2			
		Control chain implementation techniques (Robust Control, Predictive....)	Fundamental	Presential	15	0	15	30	23	2		2			
		Tutored Project IX	Fundamental	Not Presential	0	0	15	15	13	1		1		x	
	T.U.20 : Industrial systems	Real time systems	Fundamental	Presential	15	0	15	30	23	2	8,5	2	8,5		x
		Interfacing technology	Fundamental	Presential	15	15	15	45	35	3		3			
		Internet of things	Fundamental	Presential	15	0	15	30	23	2		2			x
		Tutored Project X	Fundamental	Not Presential	0	0	22,5	22,5	15	1,5		1,5		x	
	T.U.21 : Human sciences and engineering culture V	Labor law	Transversal	Presential	0	15	0	15	13	1	3,5	1	3,5		x
		Preparation for English level B2 Certification (diploma requirement)	Transversal	Presential	0	22,5	0	22,5	15	1,5		1,5			x
		Scientific Writing	Transversal	Presential	0	15	0	15	13	1		1			
	T.U.22 : Electrical systems	Smart Grid	Fundamental	Presential	15	15	0	30	23	2	6	2	6		
		Renewable energies	Fundamental	Presential	15	0	15	30	23	2		2			
		Machine Control	Fundamental	Presential	15	0	15	30	23	2		2			
	T.U. 23 : Optional	Two opening modules									4	0	4		x
Electrical vehicle architecture and composition		Optional	Presential	10,0	10,0	10,0	30,0	23	2	2					
Industry 4.0		Optional	Presential	10,0	10,0	10,0	30,0	23	2	2					
Industrial computing applied to agriculture										0					
Robot Modeling and Control										0					
Total					155	118	178	450	346	30	30	30			



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## SEMESTER 6 End-of-studies project

Semester	Teaching Unit	Modules	Nature	Type	Hourly volume				Number of Credits		Allocated Coefficients		Evaluation method	
					Course	DW	PW	Total	ECTS	TECTS	AC	TAC	Continuous Assessment	Blended Assessment
S6	T.U.24	Technician Internship	Fundamental	NOT Presential	0	0	45	45	3	3	3	3	X	
		Ingeneering Intership	Fundamental	NOT Presential	0	0	45	45	3	3	3	3	X	
		End-of-Studies Project	Fundamental	NOT Presential	0	0	360	360	24	24	24	24	X	