

CORE COURSES & SPECIALIZATION ELECTIVES - MASTER ELECTRICAL ENGINEERING – 2023/2024

Core courses					
Code	Course name	EC	Group	Q	Timeslot
2DME10	Discrete mathematics	5	M&CS	1	B
2DME20	Non-linear optimization	5	M&CS	1	C
2DME30	Complex analysis	5	M&CS	1	B
5CPA0	Numerical methods in electrical eng.	5	EM	1	D
5CCA0	Semiconductor physics and materials	5	IC	1	E
5CTA0	Statistical signal processing	5	SPS	1	A
5CSA0	Modeling dynamics	5	CS	1	D
5CHA0	Classical and modern physics	5	PHI	1	C

Internship & Graduation project					
Code	Course name	EC	Group	Q	Timeslot
5I010	Internship EE	10	-	-	-
5I015	Internship EE	15	-	-	-
5I005	Internship EE extension	5	-	-	-
5G040	Graduation project EE	40	-	-	-
5G045	Graduation project EE	45	-	-	-
5EEIDD30	Graduation project EE combined	60	-	-	-

Consult the [online education guide](#) to find out which code applies to you.

Professional development courses			
Code	Course name	EC	Planning
5CKFO	Research set-up	2,5	Q1 E2/E3 & Q3 D2/D3
5CKG0	Career development	2,5	Q2 A1/B2, Q3 B1/B2 & Q4 C1/C2/D2

Specialization electives					
Code	Course name	EC	Group	Q	Timeslot
5SMCO	Control principles for engineered system	5	CS	2	A
5SMB0	System identification	5	CS	3	C
5SHA0	Photonic integrated devices	5	ECO	2	A2/A3
5STA0	Optical fibre comm. technology	5	ECO	3	D1
5SEDO	Electrical energy systems in transition	2,5	EES-1	2	C2
5SEEO	Planning & operation of elect power syst	2,5	EES-1	2	D2
5SEFO	Smart grids, ICT and electricity markets	5	EES-1	3	D2
5SVA0	High voltage technology	5	EES-2	2	A
5SVB0	Electromagnetic compatibility	5	EES-2	3	E
5SPB0	Microwave engineering and antennas	5	EM	2	E2/E3
5SPDO	Electromagnetic modeling techniques	5	EM	3	C
5SWA0	Rotary permanent magnet machines	5	EPE-1	2	D
5SWB0	Advanced power electronics	5	EPE-1	3	A
5SWCO	Linear and planar motors for hp systems	5	EPE-2	2	D
5SWB0	Advanced power electronics	5	EPE-2	3	A
5SIA0	Embedded computer architecture	5	ES	2	A2/A3
5SIB0	Electronic design automation	5	ES	3	B2
5SFA0	Data converters 1: fundamentals	5	IC-1**	2	B2/B3
5SFD0	Data converters 2: design	5	IC-1**	3	A1
5SFB0	RF transceivers 1: fundamentals	5	IC-2**	2	C2
5SFE0	RF transceivers 2: design	5	IC-2**	3	E1
5SHA0	Photonic integrated devices	5	PHI	2	A2/A3
5SHCO	Microfabrication technology	5	PHI	3	C2
5SSDO	Bayesian machine learning and inf.pro.	5	SPS	2	D2/D3
5SSCO	Adaptive array signal processing	5	SPS	3	B1

**It is recommended to take course [5SFCO](#) together with specialization paths IC-1 & IC-2.

FREE ELECTIVES – MASTER ELECTRICAL ENGINEERING – 2023/2024

Free electives Q1				
Code	Course name	EC	Group	Timeslot
5LEEO	Electrical power eng and syst integrat.	5	EES	D
5LELO	Power quality phenomena	5	EES	E
5LWEO	Control of rotating field machines	5	EPE	A
5LWHO	Modelling & contr of power converters	5	EPE	C
5LICO	Networked embedded systems	5	ES	A

Free electives year				
Code	Course name	EC	Group	Timeslot
5LFFO	Electronics: selected topics	5	IC	X
5LFIO	Electronics: selected topics	2,5	IC	X

Free electives Q2				
Code	Course name	EC	Group	Timeslot
5LMAO	Model reduction	5	CS	C
5SSC29	Stochastic Processes, filtering and estimation	5	CS	E
5LPAO	Wireless communications	5	EM	C1
5LPEO	Electromagnetic fields in MRI	5	EM	C1
5LIGO	Applied combinatorial algorithms	5	ES	B1
5LIVO	Video health monitoring	5	ES	C2
5LIHO	Digital integrated circuit design	5	ES	E
5LIPO	Digital integrated circuits: fundamentals	2,5	ES	E
5LSBO	Monitoring respiration and circulation	5	SPS	B1
5LSHO	Computer vision & 3D image processing	5	SPS	E
5LSEO	Techn. for video compression & analysis	5	SPS	C1
5ATO10	Electrical components	2,5	EPE	C2
5LTDO	Introduction to quantum sensing	5	ECO	E
5SFCO	Advanced CMOS design	5	IC	E1

FREE ELECTIVES – MASTER ELECTRICAL ENGINEERING – 2023/2024

Free electives Q3				
Code	Course name	EC	Group	Timeslot
5LMBO	Model predictive control	5	CS	A1
5LMCO	Robust control	5	CS	E
5LMGO	Advanced process control	5	CS	A2
5LEAO	Protection & automation of distribution net.	2,5	EES	C
5LEPO	Electr. Markets: Modeling and Optimization	2,5	EES	A2
5LEGO	Pulsed power technology	5	EES	D
5LWFO	Fem for electromagnetic devices	5	EPE	D2/D3
5LIEO	Multiprocessors	5	ES	A1
5LIMO	Parallelization, compilers and platforms	5	ES	A2
5LILO	Intelligent architectures	5	ES	C2
5LIJO	Embedded control systems	5	ES	E1
5LAHO	Seminar: optical interconnection network	2,5	PHI	A1
5LHBO	Optical sensing and metrology	5	PHI	E
5LSCO	Biomedical sensing technology	5	SPS	A2/A3
5LSJO	Image analysis health-care technologies	5	SPS	D1
5LSMO	Neural networks for computer vision	5	SPS	E
5LTEO	Quantum communications	5	ECO	E

Free electives Q4				
Code	Course name	EC	Group	Timeslot
5LHCO	PIC characterization	2,5	PHI	C2
5SC28	Machine learning for systems and control	5	CS	B
5LTBO	Fibre optic comm. systems & networks	5	ECO	A1
5LTCO	Brain-inspired optical computation	2,5	ECO	E2/E3
5LENO	Power system stability and dynamics	2,5	EES	C1
5LEIO	Pulsed pow driven chemistry of plasmas	2,5	EES	D
5LECO	Underground & submarine power cables	5	EES	A
5LEMO	Dynamic control of power conversion in renewable energy systems	5	EES	E2
5LPBO	Phased array and smart antennas	5	EM	C1
5LEJO	Secondary batteries & hydrogen storage	2,5	EPE	A2
5LWCO	Advanced actuator design	5	EPE	A1
5LWGO	Power electr. for high precision appl.	5	EPE	B2/B3
5LIAO	Embedded visual control	5	ES	A1
5LIDO	Systems on silicon	5	ES	A2/A3
5LIBO	Embedded systems laboratory	5	ES	B
5LIKO	Embedded signal processing systems	5	ES	D1
5LFEQ	Novel concepts in environm. monitoring	2,5	IC	B
5LFJO	Flexible electronics: circuits and systems	5	IC	D
5LFBO	Terahertz systems	5	IC	E
5LSLO	Machine learning for signal processing	5	SPS	A2/A3
5LSKO	Digital wireless comm. explor. lab	5	SPS	D2/D3
5LSFO	Applications of information theory	5	SPS	E1