

Studies Plan

Energy Science and Technology 2025-26

Block 1

Courses			Master 1					Master 2					Exam Session	Exam	Credit	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
E	Convex optimization					2h	2h									
	MGT-418	MTE	Kuhn													
	Electrochemistry for materials technology															
E	MSE-441	MX	Frantz Van Herle			2h	1h									
	Energy conversion and renewable energy															
E	ME-409	GM	Maréchal Nguyen			2h	1h		1h							
	Energy supply, economics and transition															
E	ENG-410	SIE	Ballif Binder Thalmann							2h						
	Fundamentals & processes for photovoltaic devices															
E	MICRO-565	MT	Ballif							2h	1h					
	Heat pump systems															
E	ME-459	GM	Schiffmann							2h	1h					
	Hydraulic turbomachines															
E	ME-453	GM	Vagnoni			3h	1h									

Block 5 "Options"

Courses			Master 1					Master 2					Exam Session	Exam	Credit		
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I		
	HSS : Introduction to project																
		SHS													Win	3	
	HSS : Project																
		SHS													Sum	3	
	Project in energy I																
E	ENG-412	EL	Profs divers							10h				10h	Sum Win	During the semester	10

Group 2

Courses				Master 1					Master 2					Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
E	Advanced heat transfer									2h	1h			Sum	Written	3
E	ME-465	GM	Haussener													
E	Air pollution									2h		3h		Sum	Written	5
	ENV-409	SIE	Reimann Bhend Takahama													
E	Discrete optimization									2h	2h			Sum	Written	5
	MATH-261	MA	Eisenbrand													
E	Energy systems engineering									2h	1h			Sum	During the semester	3
	ChE-304	CGC	Luterbacher													
E	Fundamentals of electrical circuits and systems I					1h	1h							Win	During the semester	2
	EE-406	EL	Thiran													
E	Fundamentals of electrical circuits and systems II					1h	1h							Win	Written	2
	EE-407	EL	Rachidi-Haeri													
E	Heat and mass transfer									3h	1h			Sum	Written	4
	ME-341	GM	Tagliabue													
	Hydroacoustic for															

E	hydropower plants									
	ME-443	GM	Nicolet		2h	1h	Sum	Oral	3	
	Hydropower plants: generating and pumping units									
E	EE-456	EL	Vagnoni		1h	1h	Win	Written	2	
	Industrial electronics I									
E	EE-465	EL	Dujic		2h	2h	Win	Oral	4	
	Life cycle assessment in energy systems									
E	ENV-510	EL	Margni		2h	1h	Win	During the semester	3	
	Liquid-gas interfacial heat and mass transfer									
E	ME-446	GM	Lu		2h	1h	Win	Written	3	
	Machine learning I									
E	MICRO-455	MT	Billard		4h		Win	Written	4	
	Negotiation techniques									
E	MGT-466	MTE	Williams		1h	1h	Sum	During the semester	2	
	Nuclear fusion and plasma physics									
E	PHYS-445	PH	Fasoli		2h	2h	Win	Oral	4	
	Power systems analysis									
E	EE-362	EL	Paolone		3h	2h	Win	During the semester	5	
	Principles of finance									
E	MGT-482	MTE	Morellec		2h	2h	Win	Written	5	
	Principles of microeconomics									
E	MGT-454	MTE	Kis		3h	1h	Win	Written	4	
	Solid waste engineering									
E	ENV-500	SIE	Ludwig		2h	1h	1h	Win	During the semester	4
	Thermodynamics of energy conversion and storage									
E	ChE-414	CGC	Züttel		2h	1h	Sum	Written	3	
	Water resources engineering and management									
E	CIVIL-466	GC	Bieri Perona Zeimetz		3h	1h	1h	Sum	Written	5

Group 3

Courses				Master 1					Master 2					Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
E	Advanced control systems									2h	1h			Sum	Written	3
E	ME-524	GM	Karimi													
E	Advanced energetics													Win	Oral	5
	ME-451	GM	Florez Orrego Maréchal		3h	2h										
E	Advanced lab in electrical energy systems												4h	Sum	During the semester	4
	EE-588	EL	Hodder Robert													
E	Applied data analysis													Win	Written	8
	CS-401	SC	Brbic		2h			2h								
E	Development engineering									2h		2h		Sum	During the semester	4
	ENV-470	SIE														
E	Distributed intelligent systems													Win	Oral	5
	ENG-466	SIE	Martinoli		2h	2h	1h									
E	Electromagnetic compatibility									3h	1h			Sum	During the semester	4
	EE-576	EL	Rachidi-Haeri													

E	Energy and comfort in buildings CIVIL-407		GC	Favero Khovalyg Licina Sonta	2h 1h	2h		Win	During the semester	5
E	Energy storage in power systems: technologies, applications and future needs EE-466		EL	Sossan	2h 1h			Win	Written	3
E	Engines and fuel cells ME-551		GM	Van Herle	3h			Win	Written	4
E	Environmental transport phenomena ENG-420		SIE	Crouzy Porté-Agel	2h 1h	2h		Win	Written	5
E	Hydropower schemes and pumped-storage CIVIL-469		GC	De Cesare Manso		2h 2h		Sum	Written	4
E	Industrial automation CS-487		SC	Sommer Tourmier		2h 1h		Sum	Oral	3
E	Industrial electronics II EE-565		EL	Dujic		2h	2h	Sum	Oral	4
E	Material flow analysis and resource management ENV-501		SIE	Binder Felix Martin Del Campo	2h 1h	1h		Win	Written	4
E	Modelling and optimization of energy systems ME-454		GM	Maréchal	2h 2h			Win	Oral	4
E	Model predictive control ME-425		GM	Jones	2h 2h			Win	Written	4
E	Power system restructuring and deregulation EE-570		EL	Cherkaoui		2h 1h		Sum	During the semester	3
E	Renewable energy (for ME) ME-460		GM	Haussener Van Herle		2h 1h		Sum	Written	4
E	Semiconductor devices I EE-557		EL	Matioli	3h 1h			Win	During the semester	4
E	Smart grids technologies EE-472		EL	Paolone		2h 1h	2h	Sum	Written	5
E	Solar energy conversion ME-468		GM	Haussener	2h 1h	1h		Win	Written	4
E	Sustainability assessment of urban systems ENV-461		SIE	Binder		2h	1h	Sum	Written	3
E	Water and sanitation for development ENV-402		SIE	Lüthi	2h 1h			Win	Written	3
E	Water and wastewater treatment ENV-405		SIE	Gu Merle	2h 3h			Win	Written	5

Group 4

Courses				Master 1					Master 2					Exam Session	Exam	Credit	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I		
E	Project in energy II ENG-413		EL	Profs divers					9h					9h	Sum Win	During the semester	9

Master project

Courses				Master 1					Master 2					MP Autumn					MP Spring					Exam Session	Exam	Credit					
Lang.	Code	Sect.	Teacher	Specialization	C	E	L	T	P	I	C	E	L	T	P	I	C	E	L	T	P	I	C	E	L	T	P	I			
	Engineering internship credited with master project (master in Energy science and technology)																														
F	EE-595	EL	Profs divers								320h						320h						320h					320h	Sum Win	During the semester	0
	Master project in Energy, Science and Technology																														
	EE-599(d)	EL_ENE	Profs divers																				900h					900h	Sum Win	Oral	30