Studies Plan

Génie mécanique 2025-26

Block "Projects"

Lang.	Code	Sect.	Teacher	Specialization	M1 C	M1 E	M1 L	M1 T	M1 P	M1 I	M2 C	M2 E	M2 L	M2 T	M2 P	M2 I	Exam Session	Exam	Credit
Mechanical engineering project I																			
	ME-401	GM	Profs divers						10h						10h		Sum Win	During the semester	10
HSS : Introduction to project																			
			SHS														Win		3
HSS : Project																			
			SHS														Sum		3

Group "Options accepted SGM"

Lang.	Code	Sect.	Teacher	Specialization	M1 C	M1 E	M1 L	M1 T	M1 P	M1 I	M2 C	M2 E	M2 L	M2 T	M2 P	M2 I	Exam Session	Exam	Credit
Advanced additive manufacturing technologies																			
E	MICRO-413	MT	Brugger Pu								2h				2h		Sum	Oral	4
Advanced composites in engineering structures																			
E	CIVIL-443	GC	Vassilopoulos		2h	1h											Win	Oral	3
Assembly techniques																			
E	MSE-464	MX									2h						Sum	During the semester	2
Basics of mobile robotics																			
E	MICRO-452	MT	Mondada		1h			1h	2h								Win	Written	4
Basics of robotics for manipulation																			
E	MICRO-450	MT	Bouri		3h												Win	Written	3
Biophysics : physics of biological systems																			
E	PHYS-302	PH	Rahi		2h	2h											Win	During the semester	4
Biophysics : physics of the cell																			
E	PHYS-301	PH	Manley								2h	1h					Sum	Written	3
Composites technology																			
E	MSE-440	MX	Bourban Michaud Wakeman		2h	1h											Win	During the semester	3
Computational motor control																			
E	MICRO-436	MT	Ijspeert								2h	2h					Sum	During the semester	4
Computational optical imaging																			
E	MICRO-421	MT	Psaltis								3h	1h					Sum	During the semester	4
Computer simulation of physical systems I																			
E	PHYS-403	PH	Pasquarello		2h	2h											Win	Oral	4
Continuum mechanics and applications																			
E	CIVIL-425	GC									3h	2h					Sum	Oral	6
Convex optimization																			
E	MGT-418	MTE	Kuhn		2h	2h											Win	Written	5
Corrosion and protection of metals + Laboratory Work																			
F	MSE-311	MX	Igual Muñoz								2h		1h				Sum	Oral	3
Deformation of materials																			
F	MSE-310	MX	Logé		3h	1h											Win	Oral	4
Distributed intelligent systems																			
E	ENG-466	SIE	Martinoli		2h	2h	1h										Win	Oral	5

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	Course / Code	Section	Lecturer(s)					Sem.	Exam	Credits
E	**Dynamical system theory for engineers** COM-502	SC				3h 1h		Sum	Written	6
F	**Embedded motor control** MICRO-510	MT	Hodder Köchli Perriard	1h	2h			Win	Oral	3
E	**Energy and comfort in buildings** CIVIL-407	GC	Favero Khovalyg Licina Sonta	2h 1h	2h			Win	During the semester	5
E	**Energy geostructures** CIVIL-444	GC				2h 1h	1h	Sum	Written	4
E	**Environmental transport phenomena** ENG-420	SIE	Crouzy Porté-Agel	2h 1h	2h			Win	Written	5
E	**Industrial automation** CS-487	SC	Sommer Tournier			2h 1h		Sum	Oral	3
E	**Innovation & entrepreneurship in engineering** MGT-555	MTE	Michaud Weber	2h	8h			Win	During the semester	10
E	**Laser microprocessing** MICRO-520	MT	Hoffmann		2h			Sum	Oral	2
E	**Legged robots** MICRO-507	MT	Ijspeert	2h 1h	1h			Win	During the semester	4
E	**Machine learning for predictive maintenance applications** CIVIL-426	GC	Fink	2h 2h	2h			Win	During the semester	6
E	**Machine learning I** MICRO-455	MT	Billard	4h				Win	Written	4
E	**Machine learning II** MICRO-570	MT				3h .5h	.5h	Sum	Oral	4
E	**Machine learning programming** MICRO-401	MT	Billard		2h			Win	During the semester	2
E	**Materials selection** MSE-474	MX	Michler Vaucher			2h		Sum	Written	2
F	**Microprogrammed Embedded Systems** EE-310	EL	Atienza Alonso	2h	2h			Win	Oral	4
E	**Multiscale modelling in mechanics** CIVIL-408	GC	Karapiperis	2h 2h				Win	During the semester	4
E	**Nonlinear analysis of structures** CIVIL-449	GC	Lignos Saloustros	3h 2h				Win	Written	6
E	**Numerical approximation of PDEs** MATH-451	MA	Antolin Sanchez Buffa			2h 2h		Sum	Written	5
F	**Physiology by systems** BIO-377	SV	Roy			3h 1h		Sum	Written	4
F	**Polymer composites + Laboratory Work** MSE-340	MX	Bourban Michaud	2h	2h			Win	Oral	4
E	**Polymer science** MSE-362	MX	Görl	2h 1h				Win	Written	3

Lang.	Code	Sect.	Teacher	Master 1	Master 2	Exam Session	Exam	Credit
Sensors								
F	MICRO-330	MT	Boero Shea		5h	Sum	Written	5
Sensors in medical instrumentation								
E	EE-511	EL	Chételat Ionescu		2h 1h	Sum	Written	3
Space mission design and operations								
E	EE-585	EL	Kuntzer	2h		Win	Oral	2
Surface analysis								
E	MSE-351	MX	Igual Muñoz Stolichnov	2h 1h		Win	Written	3
Thermodynamics of comfort in buildings								
E	CIVIL-450	GC	Khovalyg		1h 1h 1h	Sum	During the semester	3
Towards sustainable materials								
E	MSE-433	MX	Leterrier Wakeman		3h 1h	Sum	During the semester	4
Tribology								
E	MSE-485	MX	Igual Muñoz	2h		Win	During the semester	2

Group "Options SGM"

	Courses				Master 1	Master 2	Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	C E L T P I	C E L T P I			
	Advanced control systems								
E	ME-524	GM	Karimi			2h 1h	Sum	Written	3
	Advanced design for sustainable future								
E	ME-420	GM	Paik		2h 1h		Win	During the semester	5
	Advanced energetics								
E	ME-451	GM	Florez Orrego Maréchal		3h 2h		Win	Oral	5
	Advanced heat transfer								
E	ME-465	GM	Haussener			2h 1h	Sum	Written	3
	Aerodynamics								
E	ME-445	GM	Mulleners		2h 2h		Win	Written	4
	Aeroelasticity and fluid-structure interaction								
F	ME-435	GM	Farhat		2h 1h		Win	Written	3
	Applied mechanical design								
E	ME-403	GM			1h 4h		Win	During the semester	5
	Biomechanics of the cardiovascular system								
E	ME-481	GM	Stergiopoulos			2h 1h	Sum	Written	3
	Biomechanics of the musculoskeletal system								
E	ME-482	GM	Pioletti			2h 1h	Sum	During the semester	5
	Cavitation and interface phenomena								
F	ME-462	GM	Farhat		2h 1h		Win	Oral	3
	Continuous improvement of manufacturing systems								
E	ME-498	GM	Kaboli			2h 2h	Sum	During the semester	5
	Data-driven design & fabrication methods								
E	ME-428	GM	Hughes			2h 1h	Sum	During the semester	3
	Dynamic finite element analysis of structures								
E	ME-473	GM	Burzio		2h 1h		Win	Oral	3
	Engines and fuel cells								
E	ME-551	GM	Van Herle		3h		Win	Written	4

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	Code	Sec	Professor						Sem	Exam	Cr
Heat pump systems											
E	ME-459	GM	Schiffmann			2h 1h			Sum	Written	3
Hydraulic turbomachines											
E	ME-453	GM	Vagnoni	3h 1h					Win	Written	4
Hydroacoustic for hydropower plants											
E	ME-443	GM	Nicolet			2h		1h	Sum	Oral	3
Hydrodynamics											
E	ME-444	GM	Gallaire			2h 2h			Sum	Written	5
Instability											
E	ME-466	GM	Gallaire	2h 1h					Win	Written	3
Introduction to additive manufacturing											
E	ME-413	GM	Boillat Brugger Moser	2h	1h				Win	Written	3
Introduction to nuclear engineering											
E	ME-464	GM	Scolaro			2h			Sum	Written	2
Liquid-gas interfacial heat and mass transfer											
E	ME-446	GM	Lu	2h 1h					Win	Written	3
Mechanical engineering project II											
	ME-402	GM	Profs divers				2h	2h	Sum Win	During the semester	10
Mechanical product design and development											
E	ME-410	GM	Paik	2h	1h				Win	During the semester	5
Mechanics of slender structures											
E	ME-411	GM	Reis	3h	2h				Win	Written	5
Mechanics of soft and biological matter											
E	ME-470	GM		3h 1h					Win	During the semester	4
Mechanobiology: how mechanics regulate life											
E	ME-480	GM		2h 2h					Win	During the semester	4
Micro/Nanomechanical devices											
E	ME-426	GM	Villanueva	2h 2h					Win	Written	4
Micro/Nano robotics											
E	ME-436	GM	Sakar			2h 1h			Sum	During the semester	3
Modelling and optimization of energy systems											
E	ME-454	GM	Maréchal	2h 2h					Win	Oral	4
Model predictive control											
E	ME-425	GM	Jones	2h 2h					Win	Written	4
Multiagent decision-making and control											
E	ME-429	GM	Kamgarpour			2h 1h		1h	Sum	During the semester	4
Multivariable control											
E	ME-422	GM	Ferrari Trecate	2h 2h					Win	Written	4
Nano-scale heat transfer											
E	ME-469	GM	Tagliabue			2h 1h		1h	Sum	During the semester	4
Networked control systems											
E	ME-427	GM	Ferrari Trecate	2h 1h					Win	Written	3
Nonlinear Control Systems											
F	ME-523	GM	Müllhaupt	2h 1h					Win	Written	3
Numerical flow simulation											
E	ME-474	GM	Boujo	2h 2h					Win	During the semester	5
Numerical methods in biomechanics											
E	ME-484	GM	Terrier			2h 1h			Sum	Written	3

Lang.	Code	Sect.	Teacher			Exam Session	Exam	Credit
Product decarbonization and life cycle analysis								
E	ME-517	GM	Wakeman	2h 1h	1h	Win	During the semester	4
Production management								
E	ME-419	GM	Kaboli	2h	2h	Win	During the semester	5
Renewable energy (for ME)								
E	ME-460	GM	Haussener Van Herle		2h 1h	Sum	Written	4
Solar energy conversion								
E	ME-468	GM	Haussener	2h 1h	1h	Win	Written	4
System identification								
E	ME-421	GM	Karimi		2h 1h	Sum	Written	3
Thermal power plants								
E	ME-458	GM	Van Herle		2h 1h	Sum	Written	3
Turbulence								
E	ME-467	GM	Schneider		3h 2h	Sum	During the semester	5

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 Mechanical engineering)																							
F	ME-597	GM	Profs divers		320h		320h		320h		320h										Sum Win	During the semester	0
Master project in Mechanical Engineering																							
	ME-599	GM	Profs divers						900h		900h										Sum Win	Oral	30

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