

Studies Plan

Génie mécanique 2023-24

Block "Projects"

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	o p	l e p		
	Mechanical engineering project I						
ME-401	GM	Profs divers		2h	2h	Sum Win	During the semester
	HSS : Introduction to project					Win	3
	HSS : Project					Sum	3
	SHS						

Group "Options accepted SGM"

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	o p	l e p		
	Advanced additive manufacturing technologies						
E	MICRO-413	MT	Brugger Moser		2h 1h	Sum	Oral
	Advanced composites in engineering structures					Win	Oral
E	CIVIL-443	AR	Vassilopoulos	2h 1h			3
	Advanced machine learning					Sum	Oral
E	MICRO-570	MT			3h 1h 1h		4
	Advanced satellite positioning					Sum	During the semester
E	ENV-542	SIE			2h 2h		4
	Applied machine learning					Win	Written
E	MICRO-455	MT	Billard	4h			4
	Assembly techniques					Sum	During the semester
E	MSE-464	MX	Leinenbach Plummer		2h		2
	Basics of mobile robotics					Win	Written
E	MICRO-452	MT	Mondada	2h 2h			4
	Basics of robotics for manipulation					Win	Written
E	MICRO-450	MT	Bouri	3h			3
	Biophysics : physics of biological systems					Win	During the semester
E	PHYS-302	PH	Rahi	2h 2h			4
	Biophysics : physics of the cell					Sum	Written
E	PHYS-301	PH	Manley		2h 1h		3
	Composites technology					Win	During the semester
E	MSE-440	MX	Bourban Michaud Wakeman	2h 1h			3
	Computational motor control					Sum	During the semester
E	CS-432	SV	Ijspeert		2h 2h		4
	Computer simulation of physical systems I					Win	Oral
E	PHYS-403	PH	Pasquarello	2h 2h			4
	Convex optimization					Win	Written
E	MGT-418	MTE	Kuhn	2h 2h			5
	Corrosion and protection of metals + Laboratory Work					Sum	Oral
F	MSE-311	MX	Igual Muñoz Mischler		2h 1h		3
	Deformation of materials					Win	Oral
F	MSE-310	MX	Logé	3h 1h			4
	Distributed intelligent systems					Sum	Oral
E	ENG-466	SIE			2h 3h		5
	Dynamical system theory for engineers					Sum	Written
E	COM-502	SC			2h 1h		6

F	Embedded motor control MICRO-510	MT	Hodder Köchli Perriard	1h	2h	Win	Oral	3
E	Energy and comfort in buildings ENG-445	GC	Licina Sonta	2h	1h	Win	During the semester	4
E	Energy geostructures CIVIL-444	GC	Laloui		2h 1h	Sum	During the semester	4
E	Environmental transport phenomena ENG-420	SIE	Crouzy Porté Agel	2h	1h	Win	Written	5
E	Imaging optics MICRO-421	MT	Psaltis		2h 1h	Sum	During the semester	3
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	2h	Win	During the semester	4
E	Life cycle engineering of polymers MSE-430	MX	Letierrier	2h		Win	During the semester	2
E	Machine learning programming MICRO-401	MT	Billard		2h	Win	During the semester	2
E	Materials selection MSE-474	MX	Michler Siegmann Vaucher		2h	Sum	Written	2
	Microprogrammed Embedded Systems EE-310	EL	Atienza Alonso	2h	2h	Win	Oral	4
E	Nonlinear analysis of structures CIVIL-449	GC	Beyer Lignos Saloustrous	3h	2h	Win	Written	6
E	Numerical approximation of PDEs MATH-451	MA	Buffa		2h 2h	Sum	Written	5
E	Numerical methods for conservation laws MATH-459	MA	Licht	2h	2h	Win	Oral	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
F	Polymer science MSE-362	MX	Görl	2h	1h	Win	Written	3
E	Recycling of materials MSE-463	MX	Letierrier		2h	Sum	During the semester	2
E	Selected topics in mechanics of solids and structures CIVIL-527	GC		2h	1h	Win	Oral	3
F	Sensors MICRO-330	MT	Boero Shea		5h	Sum	Written	5
E	Sensors in medical instrumentation EE-511	EL	Chételat Ionescu	2h	1h	Sum	Written	3
E	Space mission design and operations EE-585	EL	Nicollier		2h	Sum	Oral	2
F	Statics II CIVIL-224	GC	Vurpillot		2h 2h	Sum	Written	4

E	Surface analysis MSE-351	MX	Igual Muñoz Stolichnov	2h	1h	Win	Written	3
E	Thermodynamics of comfort in buildings CIVIL-450			GC	1h	2h	Sum	During the 3 semester
E	Tribology MSE-485	MX	Igual Muñoz Mischler	2h		Win	During the 2 semester	

Group "Options SGM"

Language	Courses Code	Section	Teacher	Master 1 Specialization	Master 2 Specialization	Exam Session	Exam	Credit		
E	Advanced control systems ME-524			GM	Karimi	2h	1h	Sum	Written	3
E	Advanced energetics ME-451			GM	Maréchal	3h	2h	Win	Oral	5
E	Advanced heat transfer ME-465			GM	Haussener	2h	1h	Sum	Written	3
E	Advanced solid mechanics ME-437			GM		3h	2h	Win	During the 5 semester	
E	Aerodynamics ME-445			GM	Mulleners	2h	2h	Win	Written	4
F	Aeroelasticity and fluid-structure interaction ME-435			GM	Farhat	2h	1h	Win	Written	3
E	Applied mechanical design ME-403			GM	Schiffmann	1h	4h	Win	During the 5 semester	
E	Biomechanics of the cardiovascular system ME-481			GM	Stergiopoulos	2h	1h	Sum	Written	3
E	Biomechanics of the musculoskeletal system ME-482			GM	Pioletti	2h	1h	Sum	During the 5 semester	
F	Cavitation and interface phenomena ME-462			GM	Farhat	2h	1h	Win	Oral	3
E	Continuous improvement of manufacturing systems ME-498			GM	Kaboli	2h	2h	Sum	During the 5 semester	
E	Data-driven design & fabrication methods ME-428			GM	Hughes	2h	1h	Sum	During the 3 semester	
E	Engines and fuel cells ME-551			GM	Van Herle	3h		Win	Written	4
E	Experimental methods in engineering mechanics ME-412			GM	Kolinski	1h	3h	Win	During the 4 semester	
E	Hydraulic turbomachines ME-453			GM	Vagnoni	3h	1h	Win	Written	4
F	Hydroacoustique pour aménagements hydroélectriques ME-443			GM	Nicolet	2h	1h	Sum	Oral	3
E	Hydrodynamics ME-444			GM	Gallaire	2h	2h	Sum	Written	5
E	Instability ME-466			GM	Gallaire	2h	1h	Win	Written	3
E	Introduction to additive manufacturing ME-413			GM	Boillat Brugger Moser	2h	1h	Win	Written	3
E	Introduction to nuclear engineering ME-464			GM	Fiorina	2h		Sum	Oral	2
E	Lifecycle performance of product systems ME-516			GM	Friot	2h	1h	Sum	During the 3 semester	

	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	Nunes Pereira de Almeida Reis	3h	2h		Win	Written	5	
	Mechanobiology: how mechanics regulate life									
E	ME-480	GM	Persat Sakar	2h	1h		Win	During the semester	3	
	Micro/Nanomechanical devices									
E	ME-426	GM	Villanueva Torrijo	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	
	Multi-agent learning and control									
E	ME-429	GM	Kamgarpour			2h 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	Oral	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	
	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 cycles and heat pump systems									
E	ME-459	GM	Schiffmann Van Herle			2h 1h	Sum	Written	3	
	Turbulence									
E	ME-467	GM	Schneider			3h 2h	Sum	During the semester	5	
	Two-phase flows and heat transfer									
E	ME-446	GM	Lu	2h	1h		Win	Written	3	

Master project

Courses			Master 1	Master 2	MP Autumn	MP Spring	Exam Session	Exam	Credit		
Language	Code	Section	Teacher	Specialization	ø p	l e p	l e p	l e p			
	Engineering internship credited with master project(master in Mechanical engineering)										
F	ME-597	GM	Profs divers		320h	320h	320h	320h	Sum Win	Term paper 0	
	Master project in Mechanical Engineering										
	ME-599	GM	Profs divers				900h	900h	Sum Win	Oral	30