



Subjects list and credits
(School Year 2021-2022)
AERO 4 (Promo 2023)

SYS	VEH	majeures
✓		SET
✓		SM
✓	✓	ELSS or ELSV
	✓	EP
	✓	MS

Spring semester = "S8" = 1 st year of Master											
Code	Subjects	Teaching hours & exams	ECTS credits	Teachers	Lectures	Tutorials (TD)	Practical work (TP)	Projects	Marked Assignments	Exams	Personal work
Pole "Human Sciences & Languages" COMMON CORE FOR ALL STUDENTS											
Sh 421	Engineering Ethics	12	1,5	A. SORIYA		12			TD Project		26
Sh 422	Sociologie des entreprises et des organisations (in French)	12	1	JF. De JUNNEMANN		10				2	8
Sh 423	Droit social (in French)	11	1	F. BONNARD		10				1	8
FLEb	French & Intercultural seminar - COMPULSORY	34	6	T. MINOT S. DESCAVES	32					2	25

Pole "Corporate knowledge & Professional skills" COMMON CORE FOR ALL STUDENTS											
Cours Sciences de l'entreprise											
Mi 421	Qualité - Règlementation - Normes - Lean (in French)	14	1	O. TERRIEN	6	6				2	10
Mi 422	Principes de stratégie d'entreprise (in French)	12	0,5	A. FELCE		12			TD		10
Mi 423	Economie : Gestion Financière (in French)	26	1,5	JF. LEFEVRE V. JEANNERET (ELS)		24				2	20

Pole "Engineering Sciences" - COMMON CORE FOR ALL STUDENTS											
Engineering Sciences											
Au 421	Graphic representation of dynamic multilinear systems	21	1,5	A. DEBIANE - Y. SELLAMI	10		10		TP	1	15
Mi 426	Principes de base de Conception Avion et d'éco-conception - Industrialisation et Méthode de production (in French)	11	1	R. ZANDERIGO	10					1	11
Aé 421	Flight dynamics: aircraft flying qualities	22	1,5	P. YAZIGI	12	8			TD	2	15
Electives and Initiation to Research											
Mo 421a...i	All options except ELS : Elective module 1 (8 choices)	22	1,5	depends of the module	20					2	25
Sp 421	ELS option : Astronomy, Astrometry			V. ROBERT							
Mo 422a...i	All options except ELS : Elective module 2 (8 choices)	22	1,5	depends of the module	20					2	25
Sp 422	ELS option : Astrophysics			J. DESMARD							
Ci 421a...r	Introducing Project to Research or Innovation PIRI	20	2	depends of the project	20					TBD	28

Pole "Engineering Sciences" - 1 major/student											
Major SYSTEMS (only for students with ELS, SET or SM options)											
In 421	Complex information systems modelling	11	1	F. BONNEFOI	4	6			TP	&	8
In 422	Real Time Information Systems	24	2	A. BELBACHIR	7		16		TD	1	20
In 423	Embedded networks	16	1	F. BONNEFOI	4		12		TP		15
Ma 422	Introduction to Machine Learning	20	1,5	J.M. FRONTERA PONS	10		10		project		20
Au 425	Physical approach to aeronautical automated systems	25	2	Y. SELLAMI	8		16		TP	2	18
Major VEHICLES (only for students with ELS, EP or MS options)											
Mf 421	Fluid Dynamics	27	2	W. ABASSI	8	8	9		TD / TP	2	18
En 421	Energetics and sustainable design	17	2,5	T. KASRAOUI				17	Project		30
Mé 421	Theory of plates and shells	22	2	M. GALIMBERTI	8	12				2	15
Mé 422	Numerical calculations in mechanics and structures (FEM)	17	1	W. LARBI			16	1	Project		17

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Pole "Aeronautics and Space" - 1option/student											
SET option "Embedded systems and telecommunications"											
EI 421	Advanced applications of RPGA circuits	20	1,5	S. BENABID	4	10	6		TD-TP		17
In 424	Swarm intelligent systems	22	2,5	A. BELBACHIR	6			16	projet		30
Té 421	Telecommunications: principles and liaison balance	22	2	S. FORTUNATI	12	8				2	21
Té 422	Guided propagation and hyperfrequencies	18	1	M. SMAIL	10	6				2	12
SM option "Mechatronic systems"											
Au 424	Power electronics and actuators in aeronautics	16	1	A. DEBIANE	8		8		TP		12
Au 422	Guidance principles of autonomous systems	26	2	J. CHAHAL	8	4	12		TP	2	18
Au 423	Introduction to robotics	20	1,5	A. CASALS J. GUSTAVE	8		12		TP		16
In 424	Swarm intelligent systems	22	2,5	A. BELBACHIR	6			16	Projet		30
EP option "Energetics and Propulsion"											
En 422	Turbomachines design	42	2,5	C. DEVAUX	20	20			TD	2	28
En 423	Thermal engines for drone & light aircraft	24	2	R. BERTOSSI T. KASRAOUI	6			16	projet	2	30
En 424	Nuclear physics and nuclear rocket propulsion	22	1,5	R PEREZ RAMOS	10	10				2	30
En 425	Initiation to aeroacoustics	9	1	R PEREZ RAMOS	4	4				1	8
MS option "Mechanics and Structures"											
Mé 424	CAD: CATIA	19	2	P.GAUDIN P.VINTER				19	projet		30
Mé 425	Metallic and composite materials	34	2,5	JF.BEGUE A.BENELFELLAH	12	8	12		TP	2	25
Mé 427	Aircraft structures design	13	1	JF. BEGUE	6	6				1	8
Mé 423	Advanced Materials	29	1,5	A.BENELFELLAH	10	8	9			2	17
ELS option "Space, Launchers and Satellites"											
Sp 423	Space mechanics	22	1,5	V. ROBERT	12	8				2	15
Sp 424	Project : Atmospheric reentry and mission concept	20	2,5	V. LAGO	4			16		Projet	30
Sp 425	Space optics	22	1,5	R. LEGOFF	12	8			TD	2	15
Sp 426	Plasma physics, electrical and plasma propulsion	20	1,5	A. LEKIC S. MAZOUFFRE	10	8				2	15
Sp 427	Numerical methods for space applications (COMSOL) (for ELSV students only)	11	1	J. DESMARS	6	4				1	10