

DOUBLE DEGREE Programme

Semester S5		
Course Title	number hrs	ECTS
ECS - Electrical Energy and Linear Control	72	6
ECS tc 0 ECS Unsupervised work		
ECS tc 1 Electrical Energy	32	
ECS tc 2 Linear Control	32	
ECS tc 3 Electric Drive Control	8	
INF - Computer Science	72	6
INF tc 1 Algorithms and Object-oriented Programming	32	
INF tc 2 Software Engineering and Computer Project Management	14	
INF tc 3 Introduction to information systems	16	
INF tc 4 Practical IT project	10	
MTH - Mathematics	94	6
MTH tc 3 Probability theory and Statistics	28	
MTH tc 4 Optimization	16	
MTH tc 5 Adapted Mathematics, for International Students	50	
SEM - Economics and Management Sciences	56	5
SEM tc 1 Introduction to Economics	28	
SEM tc 2 Company management	28	
PRO S5 - Professional Practice		6
PRO tc 1 Conferences	5	
PRO tc 2 Discovering engineering (interviews of practising engineers)	4	
PRO tc 5 Physical Education & Sport	30	
PRO tc 6 Study Project	50	
PRO tc 7 Career plan – tutoring		
Modern Languages S5	<i>per language</i>	30
LV tc F1.3 French	30	
TOTAL credits S5		31

Semester S6

Course Title	number hrs	ECTS
FLE - Fluids and Energy	77	6
FLE tc 1 Fluids and Energy - Concepts and applications	52	
FLE tc 2 Fluids and Energy - Experimental and numerical methods	14	
FLE tc 3 Fluids and Energy - Project Labs	11	
IDM - Materials Engineering	74	6
IDM tc 1 From Matter to Materials: Structure and Properties	40	
IDM tc 2 Practical courses in Material and Surface Science	32	
IDM tc 3 Case study in Material Science and Engineering	2	
PCM - Physics and Chemistry of Matter	90	6
PCM tc 1 Physics and Chemistry of Matter	64	
PCM tc 2 PCM lab sessions	24	
PCM tc 3 Case Study in Material Science and Engineering	2	
STI - Information Science and Engineering	78	6
STI tc 0 Unsupervised work		
STI tc 1 Electronic Systems	36	
STI tc 2 Signal Processing	34	
STI tc 3 Analog to Digital and Digital to Analog conversions in audio systems	8	
Modern Languages S6 <i>per language</i>	30	2
LV tc F1.3 French	30	
PRO S6 – Professional Practice (8 credits in S6 of which 3 for internship)		8
PRO tc 1 Conferences	5	
PRO tc 2 Discovering engineering (interviews of practising engineers)	4	
PRO tc 3 Company visits	8	
PRO tc 4 Blue-collar internship (one month in July/August) (3 credits)	140	
PRO tc 5 Physical Education & Sport	30	
PRO tc 6 Study Project	50	
PRO tc 7 Career plan – tutoring		
TOTAL credits S6		34

Semester S7

Course Title	number hrs	ECTS
GM - Mechanical Engineering	90	6
GM tc 0 GM Unsupervised work		
GM tc 1 General Mechanical Engineering -RDM	44	
GM tc 2 Technology Analysis & Product Development	40	
GM tc 3 Mechanical Design	16	
MSS - Solid and Structural Mechanics	88	6
MSS tc 1 Deformable Solid Mechanics	36	
MSS tc 2 Experimental analysis in continuum and solid mechanics	16	
MSS tc 3 Digital Mock-Up	16	
MSS tc 4 Structural Dynamics	16	
MSS tc 5 Plasticity, forming	20	
Approf – In-depth courses S7	96	6
In-depth course 1 : INF _{1 to 4} , MTH _{1 or 2} , STI _{1 to 4} , ECS _{1 to 4}		
Unsupervised work	12	
Classes	36	
In-depth course 2 : FLE _{1 to 4} , GM _{1 or 2} , MSS _{1 or 2} , PCM _{1 to 4} , IDM _{1 to 4}		
Unsupervised work	12	
Classes	36	
SHS - Economics and Management Sciences	56	5
SHS tc 1 Social Sciences	30	
SHS tc 2 Organisational Analysis	16	
SHS tc 3 Ethics	10	
Modern Languages S7 <i>per language</i>	30	2
LV tc F1.3 French	30	
PRO S7 - Professionnelle		6
PRO tc 1 Conferences (5 per year)		
PRO tc 5 Physical Education & Sport	30	
PRO tc 8 Applied Project - Industrial or PRO tc 9 Applied Project - Research	50 (S7 + S8)	
TOTAL crédits S7		31

Semester S8

Course Title	number hrs	ECTS
A Courses		3
Functional analysis, theory and applications	32	
Concurrent, mobile distributed Java applications	32	
Production and Distribution of Electric Energy	32	
Discrete event systems	32	
Optical methods	32	
Rotor Dynamics in Mechanical Engineering	32	
Mechanics of thin structures : plates and shells	32	
Numerical Methods in Mechanical Engineering	32	
Law and Work	32	
B Courses		3
Finite element method, theory and implementation	32	
Embedded systems prototyping : FPGA based solutions	32	
Non destructive testing	32	
Nuclear Engineering	32	
healthcare engineering	32	
Water Resources (in English)	32	
Soil-Structure interaction	32	
Design and manufacturing of mechanical systems	32	
Policy and development	32	
C Courses		3
Mathematical Biology	32	
Microwave circuits and devices	32	
Collaborative embedded systems	32	
Introduction to Image Sensing and Processing	32	
Analysing and observing materials	32	
Geology and soil mechanics	32	
Multiphysics simulation in mechanical design	32	
Philosophy of sciences and techniques	32	
International Finance & Cost Analysis	32	
D Courses		3
Statistics and Econometrics	32	
Adaptive filtering : application to active noise control	32	
Web applications	32	

Physics and chemistry of surfaces and interfaces	32	
Two-phase flow in engineering systems related to energy (in English)	32	
PLM - Digital Mockup	32	
Social relationships in companies	32	
E Courses		3
Algorithms for Reasoning	32	
Design of information systems	32	
Local area networks for Industry	32	
Process engineering	32	
Industrial projects and sustainable development: how to choose the right material	32	
From micro to macro in solid and fluid mechanics (in English)	32	
Physiological Fluid Mechanics (in English)	32	
Design and manufacture management of mechanical products	32	
Development of International Commerce	32	
F Courses		3
Methods for computer science and operational research	32	
Smart mecatronics systems	32	
Materials for Electrical Engineering and Applications	32	
Ecology and the Environment	32	
Order, Chaos, Fractals	32	
Aircraft Turbojets	32	
Mechanisms and Contacts	32	
Entrepreneurship and innovation	32	
Optional Teaching Unit : choice of 5 courses (One at most from each group A, B, C, D, E or F)		15
Modern Languages S8 <i>per language</i>	15	1
LV tc F1.3 French	15	
PRO S8 - Professional		15
PRO tc 4 Applied work placement (3 months)	420	
PRO tc 5 Physical Education and Sport	15	
PRO tc 8 Applied Project - Industrial or PRO tc 9 Applied Project - Research	50 (S7 + S8)	
TOTAL S8 credits		31