

LAST NAME: FIRST NAME:

Name of the sending institution:

Sending institution supervisor's name and email:

ENSCL Supervisor:

Planned period of the mobility: From till (month/year).....

It is strongly recommended that you select "Teaching Units" as they are groups of classes when choosing courses.

You must choose one Area of Study (O):

Teaching Units	Modules	Code	Semester	ECTS	Select your courses by ticking the boxes below	Language (1)
Organic chemistry	Heterocyclic chemistry	7.1.1	S7	6		F
	Organometallic chemistry	7.1.2	S7			F
	Heteroelements chemistry	7.1.3	S7			F
	Applied molecular spectroscopy	7.1.4	S7			F
	Analysis methods (NMR, HPLC, GC-MS) ⁽²⁾	7.1.5	S7			F
Formulation	Formulation physical chemistry	7.2.1	S7	4		F
	Polymers formulation	7.2.2	S7			F
	Experimental Designs	7.2.3	S7			F/E
Materials Science	Main classes of materials	7.3.1	S7	5		F
	Mechanical analyses	7.3.2	S7			F
	Analysis of the solids	7.3.3	S7			F
	Methods of analysis: (X fluorescence, X diffraction, MEB/hardness)	7.3.4	S7			F
Catalysis	Homogeneous catalysis	7.4.1	S7	4		F
	Enzymatic catalysis	7.4.2	S7			F
	Heterogeneous catalysis and industrial applications	7.4.3	S7			F
International training – Languages	English	7.5.1	S7	4		
	German	7.5.2	S7			
	Spanish	7.5.3	S7			
	French as a foreign language	7.5.4	S7			
	Optional: 3 rd language	7.5.5	S7			
Sustainable development	End of life analysis	7.6.1	S7	3		F
	Toxicology	7.6.2	S7			F
	Security ⁽²⁾	7.6.3	S7			F
	Sustainable development	7.6.4	S7			F
Job training, Humanities	3P ⁽⁴⁾	7.7.1	S7	4		F
	Management	7.7.2	S7			F
	Industrial property	7.7.3	S7			F
	Numerical modeling	7.7.4	S7			F
	Literature research ⁽⁵⁾	7.7.5	S7			F
	Written and oral communication (1st year's internship)	7.7.6	S7			F
Chemical Engineering	Multi component distillation + liquid-liquid extraction	8.1.1	S8	4		F
	Aspen	8.1.2	S8			F
	Reactors	8.1.3	S8			F
	Experimental chemical engineering	8.1.4	S8			F
Polymers	Physico chemistry of polymers	8.2.1	S8	4		F
	Polymers chemistry	8.2.2	S8			F
	Experimental polymers chemistry	8.2.3	S8			F
International training – Languages	English	8.5.1	S8	4		
	German	8.5.2	S8			
	Spanish	8.5.3	S8			
	French as a foreign language	8.5.4	S8			
	Optional: 3 rd language	8.5.5	S8			
Job training, Humanities	Sustainable development ⁽³⁾	8.6.1	S8	5		F
	Price management	8.6.2	S8			F
	Law	8.6.3	S8			F
	Project: "Elaboration of materials or compounds with functional aim" ⁽⁴⁾	8.6.4	S8			F
Internship	Industrial internship with responsibilities (8 weeks) ⁽⁵⁾	8.7.1	S8	5		F

(1): F/E: The course can be given in French or in English according to the audience

(2): Practical work "Industrial Chemistry: analysis methods and security"

(3): Personal professional project, Seminars, Visits of industrial places

(4): Project: "Elaboration of materials or compounds with functional aim"

(5): 5 ECTS validated by the internship supervisor

Area of study	Teaching Units	Modules	Code	Semester	ECTS	Select your courses by ticking the boxes below	Language
Area A : Chemistry Biomass and Environment O	Molecular and macromolecular chemistry	Natural compounds and carbohydrate chemistry	8.3.A.1	S8	4		F/E
		Functional polymers	8.3.A.2	S8			F
		Organic matter valorisation	8.3.A.3	S8			F
	Processes and bioprocesses	Recycling and treatment of industrial waste	8.4.A.1	S8	4		F
		Heterogeneous reactors	8.4.A.2	S8			F
		Introduction to microbiology	8.4.A.3	S8			F
		Principle and Concept of Bio-refineries – Catalytic Transformation	8.4.A.4	S8			F
Area B : Chemical specialties and Formulation O	Chemical specialties	Chemistry of lipids	8.3.B.1	S8	4		F
		Carbohydrate chemistry	8.3.B.2	S8			F/E
		Eco-design of surfactants	8.3.B.3	S8			F/E
		Pigments, dyes and colorimetry	8.3.B.4	S8			F/E
		Functional Polymers	8.3.B.5	S8			F/E
	Formulation design	Solvents and solubility	8.4.B.1	S8	4		F
		Formulation of surfactants and dispersed systems	8.4.B.2	S8			F
		Design of formulated products	8.4.B.3	S8			F
		Seminars (chemical specialties, Formulation)	8.4.B.4	S8			F
		Experimental formulation chemistry	8.4.B.5	S8			F

Area C : Materials O	Use properties	Corrosion	8.3.C.1	S8	3		F/E
		Physics of polymeric materials	8.3.C.2	S8			F/E
		Plasticity – Rupture	8.3.C.3	S8			F/E
	Materials	Catalytic materials	8.4.C.1	S8	5		F
		Metallurgy	8.4.C.2	S8			F/E
		Functional materials for energy	8.4.C.3	S8			F/E
		Glass-ceramics	8.4.C.4	S8			F
		Experimental metallurgy	8.4.C.5	S8			F/E

Research project in a lab at the ENSCL not for double degree students	Subject or area :	ECTS Credits according to the duration		F/E
	Supervisor / researcher :			

EXCHANGE STUDENT
Date:
Signature

SENDING INSTITUTION (We confirm that the proposed programme of study/learning agreement has been approved)	
Date:	Date:
Supervisor's name and signature	Coordinator's name and signature and Stamp

HOST INSTITUTION (We confirm that the proposed programme of study/learning agreement has been approved)	
Date:	Date:
ENSCL Supervisor's name and signature	ENSCL Director of Studies - C. DUJARDIN

IMPORTANT (for students on FITEC programmes) :

Kindly note the particularities in the following modules:

**7.1.4 Applied molecular spectroscopy
and**

7.1.5 Analysis methods (NMR, HPLC, GC-MS)

The part of the coursework concerning Spectroscopy NMR divided into regular classes (8h) and practical classes (4h 30) is replaced by an intensive preparatory class in Organic Chemistry (9h) in semester 7 at the beginning of the school year.

The spectrometry of mass section of module 7.1.4 (8h of courses, 6h of tutorial classes) and 7.1.5 (9h of practical classes) must be taken by double-degree seeking students in semester 7.