

Coefficients and ECTS Credits
Second year of the Engineering master degree
2023 - 2024

	Curriculum unit	Courses	Coeff.		Hours		Credits	
			S7	S8	S7	S8	S7	S8
I	CHEMISTRY AND PHYSICAL CHEMISTRY OF MATERIALS (P. Méléard)	Materials & mechanical properties	1		10h40		7	
		Metallurgy	0,75		9h20			
		Interfaces et dispersed matter	1,75		20h			
		Lab training in Physical chemistry of colloids	1		22h			
		Inorganic chemistry lab II	1		21h			
II	ORGANIC CHEMISTRY AND BIOCHEMISTRY (A. Roucoux)	The Cell	1,5		17h		5	
		Industrial catalytic processes	1		12h			
		Organic chemistry lab III	1		28h			
III	CHEMICAL ENGINEERING AND ENVIRONMENT II (A. Bouzaza)	Ideal reactor design	1		11h		5	
		Unit Operations I	1		12h			
		Unit Operations II	1		12h			
		Chemical Engineering Lab II	1		24h			
IV	SCIENTIFIC MANAG.: QUALITY, SAFETY, ENVIRONMENT (N. Noiret)	Management of quality	1		12h		7	
		REACH Regulation	0,5		4h			
		Health and safety project	3,5		12h	24h		
V	FOREIGN LANGUAGES AND BUSINESS TRAINING (SEMI)	English Language	1,5	1,5	18h	18h	3	
		Attendance and conduct	1	1				
		The main functions of a company	2		21h			
		Introduction to business life	1		30h			

Choice 1 MAJOR "CHEMISTRY & TECHNOLOGIES FOR THE LIVING WORLD"	CTV-TC-1 CHEMISTRY (N. Noiret)	Materials for living systems		1	6h40		5	
		Advanced Nuclear Magnetic Resonance		2	20h			
		Formulation		1	13h20			
		Analysis and characterizations Lab		1	21h			
	CTV-TC-2 : MOLECULES OF THE LIVING WORLD (A. Denicourt)	Biopolymers		1	10h		5	
		Natural Products		1	10h			
		Reactivity of biomolecules		1	10h			
		Computer programming project		2	40h			
	CTV-TC-PROJECT			7	96h		5	
	Choice CTV-A : ADVANCED ORGANIC CHEMISTRY (N. Noiret)	Retrosynthetic analysis		1	10h		5	
		Radical chemistry		1	10h			
		Concerted reactions & Transpositions		1	10h			
		Enantioselective synthesis		1	10h			
		Biochemistry Lab		1	21h			
	Choice CTV-B MATERIALS CHEMISTRY (E. Le Fur)	Advanced crystallography		1	12h		5	
		Materials for engineers (materials for energy: photovoltaic, Thermoelectric, Batteries and CES edupack project for materials selection)		2	22h			
		Synthesis of solid materials		0,5	6h40			
	WORK PLACEMENT	Materials lab		1	21h		7	
		min. 13 weeks Engineering placement						

TOTALS for an Engineering student	23,5	24,5		30	30
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Nb of additional credits per month of work placement exceeding academic period

5

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Choice 2 MAJOR "ENVIRONMENT, PROCESSES AND ANALYSIS"	EPA-TC-1 : PROCESSES AND ENVIRONMENT (L. Favier)	Drinking water production		1		10h	6	
		Waste water treatments		1		10h		
		Air treatments		1		10h		
		Introduction to environmental regulations		1		8h		
		Computer programming project		2		40h		
	EPA-TC-2 : ANALYSIS AND CONTROL (D. Wolbert)	Solid Waste treatments		1		11h	4	
		Industrial sensors for analysis		1		10h		
		Process control		1		10h		
	EPA-TC-PROJECT	Process control Lab		1		24h	5	
		Research Project		7		96h		
	Choice EPA-C PROCESS AND ENVIRONMENTAL ENGINEERING (A. Couvert)	Heat exchangers and heat recovery		1		9h	5	
		Absorption - Adsorption		1		11h		
		Porous media flow		1		14h40		
		Fluid/solid separation process		1		9h20		
		Chemical Engineering Lab III		1		24h		
	Choice EPA-D ANALYSING THE ENVIRONMENT (N. Cimetière)	Elementary Analysis		1		9h	5	
		Chromatography for environmental analysis		1		9h		
		Analytical strategies		0,5		7h		
		Mass spectrometry for environmental analysis		0,5		7h		
		Voltametric analytical methods		1		9h		
	WORK PLACEMENT	Analysis Lab		1		24h	7	
		min. 13 weeks Engineering placement						

TOTALS for an Engineering student	23,5	24,5		30	30
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