



## Diplôme d'ingénieur chimie-biotechnologie "Chembiotech"

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### Contact

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Langue du parcours	Français		
ECTS	180 ECTS		
Volume horaire			
TP : 0h	TD : 0h	CI : 0h	CM : 0h
Formation initiale	Oui		
Formation continue	Non		
Apprentissage	Non		
Contrat de professionnalisation	Non		

# Diplôme d'ingénieur ChembioTech - 1ère année

## Semestre 1 - ChembioTech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>UE : Fundamental biochemistry and biology I</b>	<b>6 ECTS</b>						
Prokaryotic transcription		10 h			1 h		
Eukaryotic transcription for CBT							
Translation		10 h		2 h	1 h		
Replication							
Introduction to biochemistry		10 h					
<b>UE : Structural Methods and informatics for biological chemistry I</b>	<b>6 ECTS</b>						
Protein Engineering		12 h		6 h			
Statistics							
Electronics & Biosensors		12 h					
Analytical Biochemistry for CBT							
<b>UE : Engineering Sciences I</b>	<b>6 ECTS</b>						
Thermodynamic							
Phenomen of transports							
Kinetics							
<b>UE : Organic, inorganic and analytical chemistry - Fundamentals I</b>	<b>6 ECTS</b>						
Organic & inorganic chemistry		8 h		2 h	1 h		
Spectroscopies for chemistry and proteins		12.2 h		4.3 h			
<b>UE : Humanities, Economics &amp; Social Sciences I</b>	<b>3 ECTS</b>						
English							
Deutsch							
Health and safety for CBT							
Communication		2 h		6 h			
<b>UE : Practicals I</b>	<b>3 ECTS</b>						
Instrumentation essentials		14 h		14 h	4 h		
Instrumentation & Biochemistry Practicals					52 h		

## Semestre 2 - ChembioTech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>UE : Fondamentals of Biology II</b>	<b>3 ECTS</b>						
Microbiology		12 h		4 h	1 h		
Enzymology							
Cellular biology		20 h		4 h	1 h		
<b>UE : Engineering Sciences II</b>	<b>3 ECTS</b>						
Computer sciences for biotechnologies		6 h		12 h	12 h		
Bioinformatics		14 h		10 h	2 h		
<b>UE : Organic, inorganic and analytical chemistry - Fundamentals II</b>	<b>6 ECTS</b>						
Bio organic chemistry		8 h		2 h	1 h		
Organic reactivity I							
Life elements		9.3 h		1.2 h			
<b>UE : Humanities, Economics &amp; Social Sciences II</b>	<b>6 ECTS</b>						
English							
Deutsch							
Economics & Industries				12 h			
Project management		10 h					
Professional project II		4 h		1 h			
Green chemistry and ecoprocesses							
Reach norms & rights of environnement							
Sustainable development for industrial chemistry							
<b>UE PR2 : Practicals II</b>	<b>12 ECTS</b>						
Genetic engineering practicals					35 h		
Enzymology practicals		10 h		8 h	27 h		
Organic chemistry							
Analytical chemistry							
Microbiology practicals for CBT							

# Diplôme d'ingénieur ChembioTech - 2ème année

## Semestre 3 - ChembioTech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>UE : Applied molecular biology and biochemistry I</b>	<b>9 ECTS</b>						
Immunology		20 h					
Immunotechnology		12 h					
Genetic engineering		26 h		14 h	8 h		
Metabolism & Biotechnologies for CBT		15 h		4 h			
<b>UE : Organic, inorganic and analytical chemistry - applications III</b>	<b>3 ECTS</b>						
Organic reactivity II							
Analytical and bioanalytical chemistry		16.4 h		4.6 h			
<b>UE : Engineering Sciences III</b>	<b>6 ECTS</b>						
Molecular modeling for CBT		6 h		16 h			
Experimental design		14 h		12 h			
Industrial mission							
<b>UE : Humanities, Economics &amp; Social Sciences III</b>	<b>6 ECTS</b>						
English							
Deutsch							
Industrial finances		4 h		8 h			
BioEthics		10 h					
Quality		12 h					
<b>UE PR3 : Practicals III</b>	<b>3 ECTS</b>						
Bioconjugated chemistry							
Organic Chemistry					28 h		
<b>UE : Internship I</b>	<b>3 ECTS</b>						
Internship 1st year							

## Semestre 4 - ChembioTech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>UE : Organic, inorganic and analytical chemistry - Applications IV</b>	<b>6 ECTS</b>						
Bio-inorganic chemistry		11 h					
Organic reactivity III							
Supported synthesis of biomolecules		11 h		3.5 h			
<b>UE : Engineering Sciences IV</b>	<b>6 ECTS</b>						
Process engineering for chemistry		10 h		5.8 h			
Process engineering for Biotechnologies		8 h		8 h			
Industrial mission							
<b>UE : Humanities, Economics &amp; Social Sciences IV</b>	<b>6 ECTS</b>						
Projects in Bioethics				4 h	9 h		
English							
Deutsch							
<b>UE PR 4 : Practicals IV</b>	<b>12 ECTS</b>						
DSP Protein purification practicals (CBT)							
Cell culture practicals for CBT							
Process engineering							
Analytical and bioanalytical chemistry							

# Diplôme d'ingénieur Chémbiotech - 3ème année

## Semestre 5 - Chémbiotech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>Red Chémbiotech I</b>	<b>9 ECTS</b>						
Structures macromoléculaires et découvertes de médicaments		14 h			17 h		
Retrosynthesis for pharma and agro molecules		8 h					
Chemical protein synthesis		8 h					
Toxicologie		18 h					
Drug discovery and development : case studies			25.5 h	1.5 h			
Human and molecular genetics		22 h					
<b>Green Chémbiotech I</b>	<b>6 ECTS</b>						
Ecotoxicology		8 h					
Chimie des sucres et valorisation de la biomasse			24 h				
Bioremédiation		8 h					
Bioplastics							
Recycling for biofuels		12.8 h					
<b>ES : Humanities, Economics &amp; Social sciences V</b>	<b>3 ECTS</b>						
Intellectual property		12 h					
Professional project 3A CBT							
English							
Deutsch / Français							
<b>PR : Projects</b>	<b>6 ECTS</b>						
Project Chémbiotech					200 h		
<b>UE : Internship II</b>	<b>6 ECTS</b>						
2nd year internship							

## Semestre 6 - Chémbiotech

	ECTS	CM	CI	TD	TP	TE	Stage
<b>Engineer internship CBT</b>	<b>30 ECTS</b>						
Engineer internship CBT							