Université de Strasbourg

Sciences, Technologies, Santé

Diplôme d'ingénieur spécialité chimie-biotechnologies (Chembiotech)

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Composantes	• École supérieure de biotechnologie de Strasbourg (ESBS) • École européenne d'ingénieurs en chimie, polymères et matériaux (ECPM)
Langues d'enseignement	• Français • Anglais
ECTS	180
Formation à distance	Non, uniquement en présentiel
Régime d'études	• FI (Formation initiale)
Niveau RNCP	Niveau 7
RNCP	• RNCP38641 : Ingénieur diplômé de l'Université de Strasbourg, spécialité chimie-biotechnologies
Stage	Non prévu
Stage à l'étranger	Non prévu
Alternance	Non

Contacts

Responsable(s) de parcours

- François Deryckere

Programme des enseignements

Diplôme d'ingénieur spécialité chimie-biotechnologies (Chembiotech)

1ère année - Diplôme d'ingénieur chimie-biotechnologie "Chembiotech"

Semestre 1 - Chembiotech		CM	TD	TP	CI
UE : Fundamental biochemistry and biology I	6 ECTS	-	-	-	-
Procaryotic transcription		10h	-	1h	-
Eukaryotic transcription for CBT		12h	-	1h	-
Translation		10h	2h	1h	-
Introduction to biochemistry		10h	-	-	-
Replication		12h	-	1h	-
UE BC1 : Methods for Biological Chemistry I	6 ECTS	-	-	-	-
Protein Engineering		12h	6h	-	-
Statistics		8,2h	3,5h	-	-
Electronics & Biosensors		12h	-	-	-
Analytical Biochemistry for CBT		14h	14h	4h	-
UE : Engineering Sciences I	6 ECTS	-	-	-	-
Thermodynamic		5,8h	9,3h	-	-
Phenomen of transports		7h	9,3h	-	-
Kinetics		8,2h	5,8h	-	-
UE : Organic, inorganic and analytical chemistry - Fundamentals I	6 ECTS	-	-	-	-
Orga & Inorga chemistry		8h	2h	1h	-
Spectroscopies for chemistry and proteins		12,2h	4,3h	-	-
UE : Humanities, Economy & Social Sciences I	3 ECTS	-	-	-	-
English		45h	-	-	-
Deutsch		45h	-	-	-
Health and safety for CBT		9h	-	-	-
Communication		2h	6h	-	-
UE : Practicals I	3 ECTS	-	-	-	-
Instrumentation essentials		14h	14h	4h	-
Instrumentation & Biochemistry Practicals		-	-	52h	-

Semestre 2 - Chembiotech		CM	TD	TP	CI
UE : Fondamentals of Biology II	3 ECTS	-	-	-	-
Microbiology		12h	4h	1h	-

	CM	TD	TP	CI
Cellular biology	20h	4h	1h	-
Enzymology	8h	8h	1h	-
UE : Engineering Sciences II 3 ECTS	-	-	-	-
Computer sciences for biotechnologies	6h	12h	12h	-
Bioinformatics	14h	10h	2h	-
UE : Organic, inorganic and analytical chemistry - Fundamentals II 6 ECTS	-	-	-	-
Bio organic chemistry	8h	4h	1h	-
Organic reactivity I	26,9h	9,2h	-	-
Life elements	9,3h	1,2h	-	-
UE : Humanities, Economy & Social Sciences II 6 ECTS	-	-	-	-
English	-	30h	-	-
Deutsch	-	30h	-	-
Economy & Industries	-	12h	-	-
Project management	10h	-	-	-
Professionnal project II	4h	1h	-	-
Green chemistry and ecoprocesses	7h	-	-	-
Reach norms & rights of environnement	3,5h	-	-	-
Sustainable development for industrial chemistry	3,5h	-	-	-
UE PR2 : Practicals II 12 ECTS	-	-	-	-
Genetic engineering practicals	-	-	35h	-
Organic chemistry S2	-	-	28h	-
Practical Analytical chemistry	-	-	56h	-
Microbiology practicals for CBT	2h	1h	27h	-
Enzymology practicals	2h	-	27h	-

2ème année - Diplôme d'ingénieur chimie-biotechnologie "Chembiotech"

Semestre 3 - Chembiotech

	CM	TD	TP	CI
UE : Applied molecular biology and biochemistry III 9 ECTS	-	-	-	-
Immunology	20h	-	-	-
Immunotechnology	12h	-	-	-
Genetic engineering	26h	14h	8h	-
Metabolism & Biotechnologies for CBT	20h	4h	-	-
UE : Organic, inorganic and analytical chemistry - applications III 3 ECTS	-	-	-	-
Organic reactivity II	11,7h	4,6h	-	-
Analytical and bioanalytical chemistry	16,4h	4,6h	-	-
UE : Engineering Sciences III 6 ECTS	-	-	-	-

	CM	TD	TP	CI
Molecular modeling for CBT	6h	16h	-	-
Experimental design	8h	-	-	-
Industrial mission	9,3h	21h	-	-
UE : Humanities, Economy & Social Sciences III 6 ECTS	-	-	-	-
English	-	19h	-	-
Deutsch	-	19h	-	-
Industrial finances	4h	8h	-	-
BioEthics	10h	-	-	-
Quality	12h	-	-	-
UE PR4 : Practicals III 3 ECTS	-	-	-	-
Bioconjugated chemistry	-	-	10h	-
Organic Chemistry	-	-	56h	-
UE : Internship I 3 ECTS	-	-	-	-
Internship 1st year	-	-	-	-

Semestre 4 - Chembiotech

	CM	TD	TP	CI
UE : Organic, inorganic and analytical chemistry - Aplications IV 6 ECTS	-	-	-	-
Bio-inorganic chemistry	11h	-	-	-
Organic reactivity III	14h	5,8h	-	-
Supported synthesis of biomolecules	11h	3,5h	-	-
UE : Engineering Sciences IV 6 ECTS	-	-	-	-
Process engineering for chemistry	10h	5,8h	-	-
Process engineering for Biotechnologies	8h	8h	-	-
Industrial mission	-	8,2h	-	-
UE : Humanities, Economy & Social Sciences IV 6 ECTS	-	-	-	-
Projects in bioethics	-	4h	9h	-
English	-	19h	-	-
Deutsch	-	19h	-	-
UE PR 4 : Practicals IV 12 ECTS	-	-	-	-
DSP Protein purification practicals (CBT)	6h	4h	38h	-
Cell culture practicals	-	-	24h	-
Practical process engineering	-	-	56h	-
Practical Analytical and bioanalytical chemistry	-	-	56h	-

3ème année - Diplôme d'ingénieur chimie-biotechnologie "Chembiotech"

Semestre 5 - Chembiotech

	CM	TD	TP	CI
Red Chembiotech I 9 ECTS	-	-	-	-
Structures macromoléculaires et découvertes de médicaments	14h	-	17h	-
Retrosynthesis for pharma and agro molecules	8h	-	-	-
Chemical protein synthesis	8h	-	-	-
Toxicologie	18h	-	-	-
Drug discovery and development : case studies	-	1,5h	-	25,5h
Human and molecular genetics	22h	-	-	-
Green Chembiotech I 6 ECTS	-	-	-	-
Ecotoxicology	8h	-	-	-
Bioremédiation	8h	-	-	-
Bioplastics	17h	-	-	-
Recycling for biofuels	12,8h	-	-	-
Biomass valorization	-	-	-	24h
ES : Humanities, Economy & Social sciences V 3 ECTS	-	-	-	-
Intellectual property	12h	-	-	-
Professionnal project 3A CBT	8h	-	-	-
English	-	10h	-	-
Deutsch / Français	-	20h	-	-
PR : Projects 6 ECTS	-	-	-	-
Project Chembiotech	-	-	200h	-
UE : Internship II 6 ECTS	-	-	-	-
2nd year internship	-	-	-	-

Semestre 6 - Chembiotech

	CM	TD	TP	CI
Engineer internship CBT 30 ECTS	-	-	-	-
Engineer internship CBT	-	-	-	-