

“GHEORGHE ASACHI” TECHNICAL UNIVERSITY OF IAȘI
”CRISTOFOR SIMIONESCU” FACULTY OF CHEMICAL ENGINEERING AND ENVIRONMENTAL PROTECTION

Field of study: *Chemical Engineering*

Programme of study: *Biochemical Engineering*

Title of the graduated: *Engineer*

Period of studies: **4 years**

Learning program: *full-time*

CURRICULUM

1st year of study

No	Discipline Name	Discipline Code	No. hours for individual study	1 st Semester (14 weeks)						2 nd Semester (14 weeks)									
				No.hours/ week/ discipline				Exams.	ECTS	No.hours/ week/ discipline				Exams.	ECTS				
				C	S	L	P			C	S	L	P						
ID	101	Mathematical Analysis and Linear Algebra	FD ID	69	2	2	-	-	E	5									
	102	Physics 1	FD ID	69	2	-	2	-	E	5									
	103	Applied Informatics 1	FD ID	80	2	-	3	-	C	6									
	104	Inorganic Chemistry	FD ID	113	4	-	4	-	E	9									
	105	Numerical Methods and Mathematical Statistics	FD ID	44							2	2	-	-	E	4			
	106	Physics 2	FD ID	69							2	-	2	-	E	5			
	107	Analytical Chemistry 1	FD ID	91							2	-	4		E	7			
	108	Computer Assisted Graphics	FD ID	33							1	-	2	-	C	3			
	109	Applied Informatics 2	FD ID	58							1	-	2	-	E	4			
	110	Physical Trening	CD ID	22	-	-	1	-	-	-	-	-	1	-	A/R	2			
OD	111	1. English Language	CD OD	22+22	-	2	-	-	PE	2	-	2	-	-	PE	2			
		2. French Language																	
		3. German Language																	
	112	1. Coordinative Compounds Chemistry	DID OD	33								2	-	1	-	C	3		
		2. Bio-inorganic Chemistry																	
113	1. Culture, Civilization and European Institutions	CD OD	47	2	-	-	-	C	3										
	2. Science Communication																		
FCD	114	Fundamental Concepts in Chemistry	FD FCD	22	2	-	-	-	PE	2									
	115	Fundamental Concepts in Mathematics	FD FCD	22	2	-	-	-	PE	2									
	116	European Integration	CD FCD	22							2	-	-	-	PE	2			
	117	Comunication Ethics	CD FCD	22							2	-	-	-	PE	2			
				Total hours on week, total tests and credits on semester, at ID (imposed disciplines) and OD (optional disciplines)				12	4	10	-	3E	30	10	4	12	-	4E	30
								26				2C		26				2C	
												1PE						1PE	
																		1A/R	

Legende: ID – imposed discipline; OD – optional discipline; FCD – free choice disciplines; GE – graduation exam;
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RECTOR,
 Professor Dan CAȘCAVAL, Ph.D. Eng.

DEAN,
 Professor Nicolae Hurduc, Ph.D.Eng.

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Field of study: *Chemical Engineering*Programme of study: *Biochemical Engineering*Title of the graduated: *Engineer*Period of studies: **4 years**Learning program: *full-time***CURRICULUM****2nd year of study**

No	Discipline Name	Discipline Code	No. hours for individual study	3 rd Semester (14 weeks)						4 th Semester (14 weeks)						
				No.hours/ week/ discipline				Exams.	ECTS	No.hours/ week/ discipline				Exams.	ECTS	
				C	S	L	P			C	S	L	P			
ID	201	Organic Chemistry 1	DID ID	91	3	-	3	-	E	7						
	202	Analytical Chemistry 2	DID ID	91	2	-	4	-	E	7						
	203	Physical Chemistry 1: Thermodynamics	DID ID	80	3	-	2	-	E	6						
	204	Electrotechnics	DID ID	58	2	-	1	-	C	4						
	205	Organic Chemistry 2	DID ID	52							4	-	3	-	E	6
	206	Transfer Phenomena, Unit Operation and Equipments 1	DID ID	55							3	-	2	-	E	5
	207	Physical Chemistry 2: Kinetics	DID ID	44							2	-	2	-	E	4
	208	Electrochemistry and Corrosion	DID ID	33							2	-	1	-	E	3
	209	Fundamentals in Mechanical Engineering	DID ID	22							2	-	-	-	C	2
	210	Fundamentals in Mechanical Engineering – Project Design	DID ID	47							-	-	-	2	PE	3
	211	Physical Training	CD ID	22	-	-	1	-	-	-	-	-	1	-	A/R	2
	212	Practical Trening	DID ID	0							3 weeks * 30				C	3
OD	213	1. English Language	CD OD	22+22	-	2	-	-	PE	2	-	2	-	-	PE	2
		2. French Language														
		3. German Language														
	214	1. Materials Science 2. Industrial Catalysis and Catalysts	DID OD	58	2	-	1	-	C	4						
FCD	215	Discoveries of Concepts in Chemistry and Chemical Engineering	CD FCD	22	2	-	-	-	PE	2						
	216	Stimulating Creativity	CD FCD	22							2	-	-	-	PE	2
	217	Work Policies, Healt and Safety in the Workplace	CD FCD	22	2	-	-	-	PE	2						
	218	Safe Operation of Chemical Plants	DID FCD	22							2	-	-	-	PE	2
	219	Educational Elements of Innovation	SD FCD	22							2	-	-	-	PE	2
Total hours on week, total tests and credits on semester, at ID (imposed disciplines) and OD (optional disciplines)				12	2	12	-	3E 2C 1PE	30	13	2	9	2	4E 2C 2PE	30	

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Learning program: *full-time*

CURRICULUM

3rd year of study

No	Discipline Name	Discipline Code	No. hours for individual study	5 th Semester (14 weeks)						6 th Semester (14 weeks)					
				No.hours/ week/ discipline				Exams.	ECTS	No.hours/ week/ discipline				Exams.	ECTS
				C	S	L	P			C	S	L	P		
ID	301 Physical Chemistry 3: Polydispersed Systems	DID ID	69	2	-	2	-	E	5						
	302 Transfer Phenomena, Unit Operations and Equipments 2	DID ID	69	2	-	2	-	E	5						
	303 Technological Processes Optimization	DID ID	58	2	1	-	-	C	4						
	304 Transfer Phenomena, Unit Operations and Equipments 3	DID ID	69							2	-	2	-	E	4
	305 Transfer Phenomena, Unit Operations and Equipments – Project Design	DID ID	47							-	-	-	2	PE	3
	306 Processes Automation in Chemical Industry	DID ID	55							3	-	2	-	E	5
	307 Surfactants*)	SD ID	33							2	-	1	-	C	3
	308 Food Microbiology	SD ID	55							3	-	2	-	E	5
	309 Biochemistry	SD ID	44							2	-	2	-	E	4
	310 Manufacturing Systems Management and Engineering	DID ID	55	3	1	-	1	E	5						
	311 Practical Trening	SD ID	0											3 weeks * 30	C
OD	312 1. Introduction in Biotechnology 2. Bioprocesses in Chemical Industry	DID OD	58	2	-	1	-	C	4						
	313 1. Analysis and Synthesis of Technological Processes 2. Fundamentals of Chemical Engineering	DID OD	55	3	-	2	-	E	5						
	314 1. Marketing 2. Industrial Economy 3. Economic Policies of the European Union	CD OD	22	2	-	-	-	C	2						
	315 1. Pollution Prevention and Environmental Protection 2. Environmental Management and Sustainable Development	SD OD	33							2	-	-	1	C	3
	316 Project Management and Scientific Communication	CD FCD	22	1	-	-	1	PE	2						
	317 Operational Management and Quality Systems	SD FCD	33	2	-	-	1	PE	3						
FCD	318 Materials and Corrosion Protection	DID FCD	33							2	-	1	-	PE	3
	319 Natural bioactive compounds	SD FCD	22							2	-	-	-	PE	2
	320 Entrepreneurship	CD FCD	47	2	-	-	-	PE	3						
	Total hours on week, total tests and credits on semester, at ID (imposed disciplines) and OD (optional disciplines)				16	2	7	1	4E 3C	30	14	-	9	3	4E 3C 1PE

*) Common courses with *Chemistry and Engineering of Organic Compounds, Petrochemistry and Carbochemistry* programme of study.

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Learning program: *full-time*

CURRICULUM

4th year of study

No	Discipline Name	Discipline Code	No. hours for individual study	7 th Semester (14 weeks)						8 th Semester (14 weeks)							
				No.hours/ week/ discipline				Exams.	ECTS	No.hours/ week/ discipline				Exams.	ECTS		
				C	S	L	P			C	S	L	P				
ID	401	Molecular and Cellular Biology	SD ID	69	2	-	2	-	C	5							
	402	Enzimology	SD ID	69	2	-	2	-	E	5							
	403	Biochemical Engineering	SD ID	80	3	-	2	-	E	6							
	404	Industrial Biotechnology	SD ID	55	2	-	3	-	E	5							
	405	Food Biotechnology	SD ID	66	3	-	3	-	E	6							
	406	Biotechnology – Project Design	SD ID	47	-	-	-	2	PE	3							
	407	Bioreactors	SD ID	66							3	-	3	-	E	6	
	408	Bioreactors – Project Design	SD ID	47							-	-	-	2	PE	3	
	409	Natural Products Processing ^{*)}	SD ID	69							3	-	1	-	E	5	
	410	Development and Finalising of Graduation Project	SD ID	66							-	-	-	6	PE	6	
	411	Practical Training for Graduation Project	SD ID	0							2 weeks * 30			C	2		
OD	412	1. Membrane Technology and Applications ^{*)}	SD OD	69													
		2. Natural Extracts ^{*)}															
		3. Paints and Varnishes ^{*)}															
		4. Primary and Secondary Metabolites ^{*)}															
	413	1. Biotechnology in Environmental Protection ^{*)}	SD OD	69													
		2. Separation of Organic Compounds ^{*)}															
		3. Natural and Biosynthetic Compounds Conditioning ^{*)}															
		4. Biomaterials ^{*)}															
FCD	414	Techniques for Protection of Cultural Heritage	SD FCD	22	2	-	-	-	PE	2							
	415	Structural Analysis in Organic Chemistry	SD FCD	33	2	-	1	-	PE	3							
	416	Chemical and Biochemical Sensors	SD FCD	22	2	-	-	-	PE	2							
GE		Graduation exam – Bachelor of Science Degree												E	10		
Total hours on week, total tests and credits on semester, at ID (imposed disciplines) and OD (optional disciplines)					12	-	12	2	4E	30	10	-	8	8	3E	30	
					26				2C		26				2C		
									1PE						2PE		
															GE	10	

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