TECHNICAL UNIVERSITY "GHEORGHE ASACHI" OF IASI
FACULTY OF CHEMICAL ENGINEERING AND ENVIRONMENTAL PROTECTION

Profile: **Chemical Engineering**
Specialization: **Biochemical Engineering**
Title of the graduate: ***Engineer***
Period of studies: ***4 years***
Learning program: **daily**

CURRICULUM

1st YEAR

	No.	Discipline Name	Discipline Code	Pre-requi-sites	1st Semester						2nd Semester					
					No.hours/ week/ discipline				Fin. ev.	K	No.hours/ week/ discipline				Fin. ev.	K
					C	S	L	P			C	S	L	P		
ID	101	Mathematics 1(Differential and Integral calculus)	FD ID		2	2	-	-	**E**	**5**						
	102	Physics 1	FD ID		2	-	2	-	**E**	**5**						
	103	Applied Informatics 1	FD ID		2	-	3	-	**E**	**6**						
	104	Inorganic Chemistry	FD ID		4	-	4	-	**E**	**9**						
	105	Mathematics 2 (Numerical Methods and Statistics)	FD ID								2	2	-	-	**E**	**4**
	106	Physics 2	FD ID								2	-	2	-	**E**	**5**
	107	Analytical Chemistry 1	FD ID								2	-	4		**E**	**7**
	108	Computer Assisted Graphics	FD ID								1	-	2	-	**C**	**3**
	109	Applied Informatics 2	FD ID								1	-	2	-	**E**	**4**
	110	Physical Training	CD ID		-	-	1	-	**-**	**-**	-	-	1	-	**A/R**	**2**
	111	The English/French/German/Russian Language	CD ID		-	2	**-**	**-**	**PE**	**2**	-	2	**-**	**-**	**PE**	**2**
OD	112	1. Coordinative Compounds Chemistry 2. Bio-inorganic Chemistry	TD OD								2	-	1	-	**C**	**3**
	113	1. Culture, Civilization and European Institutions 2. Science Communication 3.Philosophic values and praxeology 4. History of the European construction	CD OD		2	-	-	-	**C**	**3**						
FCD	114	Fundamental Concepts in Chemistry	CD FCD		2				**PE**	**2**						
	115	Fundamental Concepts in Mathematics	CD FCD		2				**PE**	**2**						
	116	European Integration	CD FCD								2				**PE**	**2**
	117	Communication Ethics	CD FCD								2				**PE**	**2**
		Total hours on week, total tests and credits on semester, at **ID** (imposed disciplines) and **OD** (optional disciplines)			12	4	10	-	**4E 1C 1 PE**	**30**	10	4	12	-	**4E 2C 1 PE**	**30**
					26						26					

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DEAN,
Prof. Eng. Nicolae HURDUC, PhD.

RECTOR,
Prof.Eng. Dan CASCAVAL, PhD

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CURRICULUM

2nd YEAR

	No.	Discipline Name	Discipline Code	Pre-requi-sites	1st Semester						2nd Semester					
					No.hours/ week/ discipline				Fin. ev.	K	No.hours/ week/ discipline				Fin. ev.	K
					C	S	L	P			C	S	L	P		
ID	201	Organic Chemistry 1	TD ID		3	-	3	-	**E**	**7**						
	202	Analytical Chemistry 2	FD ID		2	-	4	-	**E**	**7**						
	203	Physical chemistry 1: Thermodynamics	TD ID		3	-	2	-	**E**	**6**						
	204	Electrotechnics	TD ID		2	-	1	-	**C**	**4**						
	205	Organic Chemistry 2	TD ID								4	-	3	-	**E**	**6**
	206	Transfer phenomena, Unitary Operation and Equipments 1	TD ID								3	-	2	-	**E**	**5**
	207	Physical chemistry 2: Kinetics	TD ID								2	-	2	-	**E**	**4**
	208	Electrochemistry and Corrosion	TD ID								2	-	1	-	**E**	**3**
	209	Fundamentals in Mechanical Engineering	TD ID								2	-	-	-	**C**	**2**
	210	Fundamentals in Mechanical Engineering – Project Design	TD ID								-	-	-	2	**PE**	**3**
	211	Physical Training	CD ID		-	-	1	-	**-**	**-**	-	-	1	-	**A/R**	**2**
	212	The English/French/German/Russian Language	CD ID		-	2	-	-	**PE**	**2**	-	2	-	-	**PE**	**2**
	213	Practical training – 3 weeks									3*40				**C**	**3**
OD	214	Materials Science Industrial Catalysis and Catalysts	TD OD		2	-	1	-	**C**	**4**						
FD	215	Discoveries and Concepts in chemistry and chemical engineering	CD FD		2				**PE**	**2**						
	216	Work policies, health and safety in the workplace	CD FD		2				**PE**	**2**						
	217	Safe operation of chemical plants	TD FD								2				**PE**	**2**
	218	Reaction mechanisms in organic chemistry	SD FD								2				**PE**	**2**
		Total hours on week, total tests and credits on semester, at **ID** (imposed disciplines) and **OD** (optional disciplines)			12	2	12		**4E 1C 1PE**	**30**	13	2	9	2	**4E 2C 2PE**	**30**
					26						26					

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CURRICULUM

3rd YEAR

	No.	Discipline Name	Discipline Code	Pre-requi-sites	1st Semester						2nd Semester					
					No. hours/ week/ discipline				Fin. ev.	K	No. hours/ week/ discipline				Fin. ev.	K
					C	S	L	P			C	S	L	P		
ID	301	Physical Chemistry 3: Polydispersed Systems	FD ID		2	-	2	-	**E**	**5**						
	302	Transfer Phenomena, Unitary Operations and Equipments 2	TD ID		2	-	2	-	**E**	**5**						
	303	Technological Processes Optimization	TD DI		2	1	-	-	**C**	**4**						
	304	Transfer Phenomena, Unitary Operations and Equipments 3	TD ID								2	-	2	-	**E**	**4**
	305	Transfer Phenomena, Unitary Operations and Equipments - project design	TD ID								-	-	-	2	**PE**	**3**
	306	Processes Automation in Chemical Industry	TD ID								3	-	2	-	**E**	**5**
	307	Surfactants	SD ID								2	-	1	-	**C**	**3**
	308	Organic process engineering	SD ID								3	-	2	-	**E**	**5**
	309	Cosmetic products technology	SD ID								2	-	2	-	**E**	**4**
	310	Practical Training – 3 weeks	SD ID								3*40				**C**	**3**
OD	311	Introduction in Biotechnology Bioprocesses in Chemical Engineering	TD OD		2	-	1	-	**C**	**4**						
	312	Analysis and Synthesis of Chemical Process Systems General Chemical Technology	TD OD		3	-	2	-	**E**	**5**						
	313	Manufacturing Systems Management and Engineering Operational Management and Quality Systems	ED OD		3	1	-	1	**E**	**5**						
	314	Marketing Industrial Economy Economic Policies of European Union	ED OD		2	-	-	-	**C**	**2**						
	315	Pollution Prevention and Environmental Protection Environmental Management and Sustainable Development	TD OD		-	-	-	-	-	-	2	-	-	1	**C**	**3**
FCD	316	Project Management and Scientific Communication	ED FCD		1		1		**PE**	**2**						
	317	Introduction to Intellectual Property	SD FCD		2		1		**PE**	**3**						
	318	Materials and Corrosion Protection	SD FCD								2		1		**PE**	**3**
	319	Polymers in Medicine and Pharmacy	SD FCD								2				**PE**	**2**
		Total hours on week, total tests and credits on semester, at **ID** (imposed disciplines) and **OD** (optional disciplines)			16	1	8	1	**4E 3C**	**30**	14	1	8	3	**4E 3C 1PE**	**30**
					26						26					

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CURRICULUM

4th YEAR

	No.	Discipline Name	Discipline Code	Pre-requi-sites	1st Semester						2nd Semester					
					No. hours/ week/ discipline				Fin. ev.	K	No. hours/ week/ discipline				Fin. ev.	K
					C	S	L	P			C	S	L	P		
ID	401	Molecular and Cellular Biology	SD ID		2	-	2	-	**C**	**5**						
	402	Enzimology	SD ID		2	-	2	-	**E**	**5**						
	403	Biochemical Engineering	SD ID		3	-	2	-	**E**	**6**						
	404	Industrial Biotechnology	SD ID		2	-	3	-	**E**	**5**						
	405	Food Biotechnology	SD ID		3	-	3	-	**E**	**6**						
	406	Biotechnology – Project Design	SD ID		-	-	-	2	**PE**	**3**						
	407	Bioreactors	SD ID								3	-	3	-	**E**	**6**
	408	Bioreactors – Project Design	SD ID								-	-	-	2	**PE**	**3**
	409	Natural Products Processing	SD ID								3	-	1	-	**E**	**5**
	410	Research and Design for Graduation Project	SD ID											6	**PE**	**6**
OD	411	Membrane Technology and Applications Natural Extracts Primary and Secondary Metabolites Paints and Varnishes	SD OD								2	-	2	-	**E**	**5**
	412	Biotechnology in Environmental Protection Natural and Biosynthetic Compounds Conditioning Separation of Organic Compounds Biomaterials	SD OD								2	-	2	-	**C**	**5**
FCD	413	Patrimony Preservation Methods	SD FCD		2				**PE**	**2**						
	414	Structural Analysis in Organic Chemistry	SD FCD		2		1		**PE**	**3**						
	415	Chemical and Biochemical Sensors	SD FCD		2				**PE**	**2**						
		Graduation Exam Presentation													**E**	**10**
		Total hours on week, total tests and credits on semester, at **ID** (imposed disciplines) and **OD** (optional disciplines)			12	-	12	2	**4E 1C 1PE**	**30**	10	-	8	8	**3E 1C 2PE**	**30**
															GE	**10**
					26						26					

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