

CHEMICAL ENGINEERING MASTER PROGRAM
CURRICULUM
FIRST YEAR

I Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
ENGL 1101	Foreign Language	3	6	ECS	-
ENG 1101	History and Methodology of Chemical Engineering	1	2	BS	-
	Social electives	1	2	ECS	-
Specialization: Industrial technology of inorganic substances					
ENG 1102	Modern Technologies of Processing of Mineral Raw Materials	3	6	OCE	-
ENG 1103	Modern Electrochemical Technologies	3	6	OCE	-
	Elective	4	8	ECE	-
Specialization: Technology of petrochemical synthesis					
ENG 1104	Total synthesis and synthesis planning	3	6	OCE	-
ENG 1105	Modern problems of synthesis of dielectric organic compounds	3	6	OCE	-
	Elective	4	8	ECE	-
Specialization: Oil refining technology					
ENG 1106	Project management in the oil refining industry	4	8	OCE	-
ENG 1107	Modern processing technology of lubricants	3	6	OCE	-
	Elective	3	6	ECE	-

II Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
PED 1201	Pedagogy of High School	2	4	ECS	-
ENG 1201	Modern Issues of Chemical Engineering	2	4	BS	-
Specialization: Industrial technology of inorganic substances					
ENG 1202	Innovative Technology of Inorganic Substances	4	7	OCE	-
ENG 1203	Ceramic and glass technology	3	7	OCE	-

ENG 1204	Advanced Technologies of Binding Materials	4	8	OCE	-
Specialization: Technology of petrochemical synthesis					
ENG 1205	Catalysis, organocatalysis	4	8	OCE	-
ENG 1206	Additives and plasticizers	4	8	OCE	-
ENG 1207	Modern technologies of industrial organic chemistry	3	6	OCE	-
Specialization: Oil refining technology					
ENG 1208	Modern technology of catalytic processes in oil refining	3	6	OCE	-
ENG 1209	Modelling, Simulation and Optimization of technical processes	2	4	OCE	-
ENG 1210	Modern methods of analysis in the oil industry	3	6	OCE	-
	Elective	3	6	ECE	-

SECOND YEAR

III Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
PSY 2101	Psychology	1	2	ECS	-
CHEM 2101	Research Techniques	2	4	BS	-
Specialization: Industrial technology of inorganic substances					
ENG 2101	Technology of catalysts and adsorbents	4	8	OCE	-
	Elective	4	8	ECE	-
	Elective	4	8	ECE	-
Specialization: Technology of petrochemical synthesis					
ENG 2102	The use of wastes of petrochemical synthesis	4	8	OCE	-
	Elective	4	8	ECE	-
	Elective	4	8	ECE	-
Specialization: Oil refining technology					
ENG 2103	Alternativ fuel production technology	3	6	OCE	-
ENG 2104	Development of oil refining process management systems	3	6	OCE	-
	Elective	3	6	ECE	-
	Elective	3	6	ECE	-

IV Semester (30 ECTS)					
Course Code	Course Name	Hours	ECTS	Category	Prerequisite
For all specializations					
RT 2201	Research training	-	6	RT	-
RPT 2201	Research and pedagogical training	-	6	RT	-
MT 2201	Master Thesis defence	-	18	MT	-

BS: Basic Science, ECS: English Composition & Social Sciences, OCE: Obligatory Chemical Engineering Courses, ECE: Elective Chemical Engineering Courses, MT: Master 's Thesis, RT: Research training and research-educational training.

Social Electives

SSC 3001 Philosophy problems of science and technology
 SSC 3002 Azerbaijani Multiculturalism

Technical Electives

Specialization: **Industrial Technology of Inorganic Substances**

CHEM 3001 Nanochemistry
 ENG 3001 Membrane Technology
 ENG 3002 Applied Aspects of Halurgy
 ENG 3003 Physico-Chemical Basics of Water Treatment
 ENG 3004 Technologies of Processing of Industrial Waste in Metallurgy
 ENG 3005 Modern Technologies of Refractories

Specialization: **Technology of petrochemical synthesis**

ENG 3006 Petroleum and Petrochemical Processes
 ENG 3007 Organization of scientific-research works
 ENG 3008 Molecular and Heterogeneous Catalysis
 ENG 3009 Chemical Processes on Surfaces and Interfaces
 ENG 3010 Synthetic detergents technology
 ENG 3011 Efficient use of renewable energy resources

Specialization: **Oil refining technology**

ENG 3012 Storage and efficient use of heat
 ENG 3013 3D design of petroleum refinery
 ENG 3014 Non-traditional separation
 ENG 3015 Computer design in petroleum refinery
 ENG 3016 Bioresources
 ENG 3017 Safety engineering in oil industry
 ENG 3018 Lubricants and additives
 ENG 3019 Raw materials and products of oil-refining industry