

DEPARTMENT OF CHEMICAL ENGINEERING UNDERGRADUATE PROGRAM

CURRENTLY APPLIED				SUGGESTED					
First Term									
			Credits	AKTS				Credits	AKTS
MATH 141 Basic Calculus I	(3-2)	4	5	MATH 141 Basic Calculus I	(3-2)	4	5		
PHYS 121 General Physics I	(3-2)	4	7	PHYS 121 General Physics I	(3-2)	4	7		
CHEM 121 General Chemistry I	(3-0)	3	5	CHEM 121 General Chemistry I	(3-0)	3	5		
CHEM 141 General Chemistry Lab. I	(0-2)	1	2	CHEM 141 General Chemistry Lab. I	(0-2)	1	2		
ENG 101 Development of Reading and Writing Skills I	(3-0)	3	3	ENG 101 Development of Reading and Writing Skills I	(3-0)	3	3		
CHE 101 Introduction to Chemical Engineering	(2-0)	2	8	CHE 101 Introduction to Chemical Engineering	(2-0)	2	8		
TOTAL		17	30	TOTAL		17	30		
Second Term									
			Credits	AKTS				Credits	AKTS
MATH 142 Basic Calculus II	(3-2)	4	6	MATH 142 Basic Calculus II	(3-2)	4	6		
PHYS 122 General Physics II	(3-2)	4	8	PHYS 122 General Physics II	(3-2)	4	8		
CHEM 122 General Chemistry II	(3-0)	3	5	CHEM 122 General Chemistry II	(3-0)	3	5		
CHEM 142 General Chemistry Lab. I	(0-2)	1	2	CHEM 141 General Chemistry Lab. I	(0-2)	1	2		
CHE 102 Computer Tools in Engineering	(3-2)	4	6	CHE 102 Computer Tools in Engineering	(3-2)	4	6		
ENG 102 Development of Reading and Writing Skills II	(3-0)	3	3	ENG 102 Development of Reading and Writing Skills II	(3-0)	3	3		
TOTAL		19	30	TOTAL		19	30		
Third Term									
			Credits	AKTS				Credits	AKTS
MATH 255 Differential Equations	(4-0)	4	6	MATH 255 Differential Equations	(4-0)	4	6		
CHE 201 Material and Energy Balances in Engineering	(3-0)	3	5	CHE 201 Material and Energy Balances in Engineering	(3-0)	3	5		
CHEM 221 Organic Chemistry	(4-0)	4	5	CHEM 221 Organic Chemistry	(4-0)	4	5		
ECON 205 Principles of Economics	(3-0)	3	4	ECON 205 Principles of Economics	(3-0)	3	4		
MBG 101 Biology I	(3-0)	3	5	MBG 101 Biology I	(3-0)	3	5		
*Restricted Elective	(3-0)	3	3	*Restricted Elective	(3-0)	3	3		
HIST 201 Principles of ATATÜRK	(2-0)	NC	2	HIST 201 Principles of ATATÜRK	(2-0)	NC	2		
TURK 201 Turkish Language	(2-0)	NC	2	TURK 201 Turkish Language	(2-0)	NC	2		
TOTAL		20	32	TOTAL		20	32		
Fourth Term									
			Credits	AKTS				Credits	AKTS
CHE 210 Numerical Methods in Engineering	(3-2)	4	6	CHE 210 Numerical Methods in Engineering	(3-2)	4	6		
CHE 220 Thermodynamics I	(3-0)	3	6	CHE 220 Thermodynamics I	(3-0)	3	6		
CHE 222 Fluid Mechanics PREREQUISITES: MATH 255	(4-0)	4	6	CHE 222 Fluid Mechanics PREREQUISITES: MATH 255	(4-0)	4	6		
CHEM 222 Introduction to Biochemistry	(3-0)	3	5	CHEM 222 Introduction to Biochemistry	(3-0)	3	5		
*Restricted Elective	(3-0)	3	3	*Restricted Elective	(3-0)	3	3		
HIST 202 Principles of ATATÜRK II	(2-0)	NC	2	HIST 202 Principles of ATATÜRK II	(2-0)	NC	2		
TURK 202 Turkish Language II	(2-0)	NC	2	TURK 202 Turkish Language II	(2-0)	NC	2		
TOTAL		17	30	TOTAL		17	30		

Fifth Term					
	Credits	AKTS		Credits	AKTS
CHEM 321 Physical Chemistry	(3-0) 3	4	CHEM 321 Physical Chemistry	(3-0) 3	4
CHE 311 Heat and Mass Transfer PREREQUISITES: CHE 201	(4-0) 4	5	CHE 311 Heat and Mass Transfer PREREQUISITES: CHE 201	(3-2) 4	5
CHE 321 Thermodynamics II	(3-0) 3	5	CHE 321 Thermodynamics II	(3-0) 3	5
ME 231 Materials Science and Engineering	(3-0) 3	3	ME 231 Materials Science and Engineering	(3-0) 3	3
CHE 301 Technical Writing for Chemical Engineer	(3-0) 3	3	CHE 301 Technical Writing for Chemical Engineer	(3-0) 3	3
*Non-Technical Elective	(3-0) 3	3	*Non-Technical Elective	(3-0) 3	3
CHE 300 Summer Practice I	NC	7	CHE 300 Summer Practice I	NC	7
TOTAL	19	30	TOTAL	19	30
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 302 Chemical Kinetics and Reactor Design	(4-0) 4	7	CHE 302 Chemical Kinetics and Reactor Design	(4-0) 4	7
CHE 310 Chemical Engineering Lab. I	(0-4) 2	5	CHE 310 Chemical Engineering Lab. I	(0-4) 2	5
CHE 312 Separation Processes PREREQUISITES: CHE 311	4-0) 4	5	CHE 312 Separation Processes PREREQUISITES: CHE 311	(3-2) 4	5
CHE 330 Mathematical Modelling in Engineering	(3-0) 3	7	CHE 330 Mathematical Modelling in Engineering	(3-0) 3	7
*Non-Technical Elective	(3-0) 3	3	*Non-Technical Elective	(3-0) 3	3
Technical Elective	(3-0) 3	3	Technical Elective	(3-0) 3	3
TOTAL	19	30	TOTAL	19	30
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 402 Process Dynamics and Control	(3-0) 3	4	CHE 402 Process Dynamics and Control	(3-0) 3	4
CHE 410 Chemical Engineering Lab. II	(0-4) 2	6	CHE 410 Chemical Engineering Lab. II	(0-4) 2	6
CHE 420 Engineering Economics and Design PREREQUISITES: CHE 302 and CHE312	(2-4) 4	8	CHE 420 Engineering Economics and Design PREREQUISITES: CHE 302 and CHE312	(2-4) 4	8
*Technical Elective	(3-0) 3	3	*Technical Elective	(3-0) 3	3
*Technical Elective	(3-0) 3	3	*Technical Elective	(3-0) 3	3
CHE 400 Summer Practice II	NC	7	CHE 400 Summer Practice II	NC	7
TOTAL	15	31	TOTAL	15	31
Eight Term					
	Credits	AKTS		Credits	AKTS
CHE 411 Chemical Engineering Lab. III (PREREQUISITES:CHE 302 and CHE 311)	(0-4)2	7	CHE 411 Chemical Engineering Lab. III (PREREQUISITES:CHE 302 and CHE 311)	(0-4) 2	7
CHE 421 Engineering Design PREREQUISITES: CHE 420	(2-4) 4	11	CHE 421 Engineering Design PREREQUISITES: CHE 420	(2-4) 4	11
* Nontechnical Elective	(3-0) 3	3	* Nontechnical Elective	(3-0) 3	3
*Technical Elective	(3-0) 3	3	*Technical Elective	(3-0) 3	3
* Technical Elective	(3-0) 3	3	* Technical Elective	(3-0) 3	3
MAN 211 Corporate Communication and Management Skills for Engineers	(3-0)NC	3	MAN 211 Corporate Communication and Management Skills for Engineers	(3-0)NC	3
TOTAL	15	30	TOTAL	15	30
GENERAL TOTAL	141	243	GENERAL TOTAL	141	243

***ELECTIVE COURSES**

CURRENTLY APPLIED	SUGGESTED
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RESTRICTED ELECTIVES					
Third Term					
	Credits	AKTS		Credits	AKTS
CHE 211 Introduction Polymer Science	(3-0)3	3	CHE 211 Introduction Polymer Science	(3-0)3	3
CHE 213 Microbiology	(3-0)3	3	CHE 213 Microbiology	(3-0)3	3
CHE 219 Environmental Chemistry	(3-0)3	3	CHE 219 Environmental Chemistry	(3-0)3	3
CHE 223 Molecular and Cell Biology	(3-0)3	3	CHE 223 Molecular and Cell Biology	(3-0)3	3
Fourth Term					
	Credits	AKTS		Credits	AKTS
CHE 226 Introduction to Environmental Engineering	(3-0)3	3	CHE 226 Introduction to Environmental Engineering	(3-0)3	3
CHE 228 Structure and Properties of Polymer	(3-0)3	3	CHE 228 Structure and Properties of Polymer	(3-0)3	3
CHE 230 Potential Sources of Energy	(3-0)3	3	CHE 230 Potential Sources of Energy	(3-0)3	3
CHE 232 Chemical Processing of Petroleum	(3-0)3	3	CHE 232 Chemical Processing of Petroleum	(3-0)3	3
CHE 234 Polymer Chemistry	(3-0)3	3	CHE 234 Polymer Chemistry	(3-0)3	3
CHE 240 Combustion Science	(3-0)3	3	CHE 240 Combustion Science	(3-0)3	3

TECHNICAL ELECTIVES

	Credits	AKTS		Credits	AKTS
CHE 499 Cooperative Education Course	(0-6)3	3	CHE 499 Cooperative Education Course	(0-6)3	3

PRODUCT AND PROCESS ENGINEERING					
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 360 Molecular Aspects of Chemical Engineering	(3-0)3	3	CHE 360 Molecular Aspects of Chemical Engineering	(3-0)3	3
CHE 362 Interfacial Transport Processes and Rheology	(3-0)3	3	CHE 362 Interfacial Transport Processes and Rheology	(3-0)3	3
CHE 364 Phase Equilibria	(3-0)3	3	CHE 364 Phase Equilibria	(3-0)3	3
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 449 Membrane Processes and Separation of Mixtures	(3-0)3	3	CHE 449 Membrane Processes and Separation of Mixtures	(3-0)3	3
CHE 451 Rheology of non-Newtonian Fluids	(3-0)3	3	CHE 451 Rheology of non-Newtonian Fluids	(3-0)3	3
CHE 453 Multicomponent Separation	(3-0)3	3	CHE 453 Multicomponent Separation	(3-0)3	3
CHE 463 Adsorption	(3-0)3	3	CHE 463 Adsorption	(3-0)3	3

Eight Term					
	Credits	AKTS		Credits	AKTS
CHE 423 Petrochemical Processing	(3-0)3	3	CHE 423 Petrochemical Processing	(3-0)3	3
CHE 446 Drying	(3-0)3	3	CHE 446 Drying	(3-0)3	3
CHE 448 Novel Separation Techniques	(3-0)3	3	CHE 448 Novel Separation Techniques	(3-0)3	3
CHE 450 Gas Purification Technology	(3-0)3	3	CHE 450 Gas Purification Technology	(3-0)3	3
CHE 452 Heterogenous Catalysis and Catalytic Processes	(3-0)3	3	CHE 452 Heterogenous Catalysis and Catalytic Processes	(3-0)3	3
CHE 454 Reactor Design	(3-0)3	3	CHE 454 Reactor Design	(3-0)3	3
CHE 456 Heat Transfer Equipment	(3-0)3	3	CHE 456 Heat Transfer Equipment	(3-0)3	3
CHE 458 Industrial Organization and Management	(3-0)3	3	CHE 458 Industrial Organization and Management	(3-0)3	3
CHE 460 Catalytic Reaction	(3-0)3	3	CHE 460 Catalytic Reaction	(3-0)3	3

BIOTECHNOLOGY AND BIOPROCESS ENGINEERING					
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 366 Industrial Microbiology	(3-0)3	3	CHE 366 Industrial Microbiology	(3-0)3	3
CHE 368 Cell Culture Techniques	(3-0)3	3	CHE 368 Cell Culture Techniques	(3-0)3	3
CHE 370 Molecular Engineering Aspects of Biotechnology	(3-0)3	3	CHE 370 Molecular Engineering Aspects of Biotechnology	(3-0)3	3
CHE 372 Physical Aspects of Biological Systems	(3-0)3	3	CHE 372 Physical Aspects of Biological Systems	(3-0)3	3
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 455 Process Design for Biotechnology	(3-0)3	3	CHE 455 Process Design for Biotechnology	(3-0)3	3
CHE 457 Metabolic and Cell Engineering	(3-0)3	3	CHE 457 Metabolic and Cell Engineering	(3-0)3	3
CHE 459 Special Topics in Biotechnology	(3-0)3	3	CHE 459 Special Topics in Biotechnology	(3-0)3	3
Eight Term					
	Credits	AKTS		Credits	AKTS
CHE 425 Biochemical Engineering	(3-0)3	3	CHE 425 Biochemical Engineering	(3-0)3	3
CHE 462 Enzyme Technology	(3-0)3	3	CHE 462 Enzyme Technology	(3-0)3	3
CHE 464 Separation and Purification Processes for Biochemical Products	(3-0)3	3	CHE 464 Separation and Purification Processes for Biochemical Products	(3-0)3	3
CHE 424 Biomass Conversion to Chemicals And Fuels	(3-0)3	3	CHE 424 Biomass Conversion to Chemicals And Fuels	(3-0)3	3

ENVIRONMENTAL AND ENERGY TECHNOLOGIES					
ENERGY					
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 346 Energy Management	(3-0)3	3	CHE 346 Energy Management	(3-0)3	3
CHE 348 Energy Conservation and Conversion	(3-0)3	3	CHE 348 Energy Conservation and Conversion	(3-0)3	3
CHE 350 Introduction to Process Integration	(3-0)3	3	CHE 350 Introduction to Process Integration	(3-0)3	3
CHE 352 Energy Technology	(3-0)3	3	CHE 352 Energy Technology	(3-0)3	3
CHE 354 Combustion Engineering	(3-0)3		CHE 354 Combustion Engineering	(3-0)3	3
CHE 338 Photovoltaics	(3-0)3	3	CHE 338 Photovoltaics	(3-0)3	3
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 427 Flames	(3-0)3	3	CHE 427 Flames	(3-0)3	3
CHE 429 Radiative Transfer	(3-0)3	3	CHE 429 Radiative Transfer	(3-0)3	3
CHE 431 Sustainable Energy	(3-0)3	3	CHE 431 Sustainable Energy	(3-0)3	3
CHE 433 Solar Energy Technology	(3-0)3	3	CHE 433 Solar Energy Technology	(3-0)3	3

ENVIRONMENTAL					
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 336 Pollution Prevention	(3-0)3	3	CHE 336 Pollution Prevention	(3-0)3	3
CHE 356 Industrial Water Treatment Technologies	(3-0)3	3	CHE 356 Industrial Water Treatment Technologies	(3-0)3	3
CHE 358 Solid Waste Disposal	(3-0)3	3	CHE 358 Solid Waste Disposal	(3-0)3	3
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 435 Fundamentals of Air Pollution and Control	(3-0)3	3	CHE 435 Fundamentals of Air Pollution and Control	(3-0)3	3
CHE 445 Industrial and Hazardous Waste Treatment	(3-0)3	3	CHE 445 Industrial and Hazardous Waste Treatment	(3-0)3	3
Eight Term					
	Credits	AKTS		Credits	AKTS
CHE 442 Water Pollution Control Process	(3-0)3	3	CHE 442 Water Pollution Control Process	(3-0)3	3
CHE 444 Environment and Technology	(3-0)3	3	CHE 444 Environment and Technology	(3-0)3	3

MATERIALS AND SURFACE SCIENCE					
Sixth Term					
	Credits	AKTS		Credits	AKTS
CHE 332 Polymer Technology	(3-0)3	3	CHE 332 Polymer Technology	(3-0)3	3
CHE 334 Composite Materials Processing	(3-0)3	3	CHE 334 Composite Materials Processing	(3-0)3	3
CHE 340 Principles of Electrochemical Processes	(3-0)3	3	CHE 340 Principles of Electrochemical Processes	(3-0)3	3
CHE 342 Material Characterization Techniques	(3-0)3	3	CHE 342 Material Characterization Techniques	(3-0)3	3
CHE 344 Inorganic Polymers	(3-0)3	3	CHE 344 Inorganic Polymers	(3-0)3	3
Seventh Term					
	Credits	AKTS		Credits	AKTS
CHE 437 Ceramic Science and Technology	(3-0)3	3	CHE 437 Ceramic Science and Technology	(3-0)3	3
CHE 439 Biomaterials	(3-0)3	3	CHE 439 Biomaterials	(3-0)3	3
CHE 441 Structure of Macromolecular Media and Technology	(3-0)3	3	CHE 441 Structure of Macromolecular Media and Technology	(3-0)3	3
CHE 443 Mechanical Properties of Materials	(3-0)3	3	CHE 443 Mechanical Properties of Materials	(3-0)3	3
CHE 461 Catalytic Materials	(3-0)3	3	CHE 461 Catalytic Materials	(3-0)3	3
Eight Term					
	Credits	AKTS		Credits	AKTS
CHE 440 Reactive Processing of Materials	(3-0)3	3	CHE 440 Reactive Processing of Materials	(3-0)3	3
CHE 470 Introduction to Soft Matter	(3-0)3	3	CHE 470 Introduction to Soft Matter	(3-0)3	3

* : Each restricted elective, Technical Elective and Non-Technical Elective course must be Minimum 3 Credit

Notes:

Changes in the program are shown by **Italic and Bold** characters

PREREQUISITE means a minimum grade of DD must be obtained from the course specified.