

UNDERGRADUATE CURRICULUM (2022)

**effective for students who start their first year in October 2022.

First Semester					Second Semester					
Course Code	Course Name	Credit	ECTS		Course Code	Course Name	Credit	ECTS		
CHEM 101	General Chemistry I	4-0	4	5	CHEM 102	General Chemistry II	4-0	4	5	
CHEM 131	General Chemistry Lab I	0-4	2	2	CHEM 132	General Chemistry Lab II	0-4	2	2	
ENG 101	Development of Reading and Writing Skills I	3-0	3	3	ENG 102	Development of Reading and Writing Skills II	3-0	3	3	
MATH 145	Calculus For Engineering and Science I	4-2	5	7	MATH 146	Calculus For Engineering and Science II	4-2	5	8	
MSE 100	Introduction to Materials Science and Engineering	1-0	1	1	MSE 120	Introduction to Computer Programming	2-2	3	4	
MSE 113	Computer Aided Engineering Graphics	2-2	3	4	PHYS 102	General Physics II	2-2	3	6	
PHYS 101	General Physics I	2-2	3	6	PHYS 112	General Physics Lab II	0-2	1	2	
PHYS 111	General Physics Lab I	0-2	1	2	GCC 101	Career Planning and Development	2-0	0	2	
				22					21	32

Third Semester					Fourth Semester					
Course Code	Course Name	Credit	ECTS		Course Code	Course Name	Credit	ECTS		
ECON 205	Principles of Economics	3-0	3	4	HIST 202	Principles of Ataturk II	2-0	0	2	
HIST 201	Principles of Ataturk I	2-0	0	2	MSE 202	Materials Science II (pre MSE 201)	4-0	4	6	
MATH 255	Differential Equations	4-0	4	6	MSE 204	Materials Chemistry	3-0	3	5	
MSE 201	Materials Science I	4-0	4	6	MSE 206	Mineral Processing and Extractive Metallurgy	3-0	3	5	
MSE 205	Materials Thermodynamics	3-0	3	5	MSE 222	Applied Mathematics for MSE (pre MATH 146 & MATH 255)	4-0	4	7	
MSE 215	Materials Physics	3-0	3	5	TURK 202	Turkish Language II	2-0	0	2	
TURK 201	Turkish Language I	2-0	0	2	NTE I	Nontechnical elective	3-0	3	3	
				17					17	30

Fifth Semester					Sixth Semester					
Course Code	Course Name	Credit	ECTS		Course Code	Course Name	Credit	ECTS		
MSE 300	Summer Practice I	0-0	0	5	ENG 302	Technical Writing and Communication	3-0	3	3	
MSE 305	Transport Phenomena (pre MSE 222)	3-0	3	5	MSE 310	Materials Characterization (pre MSE 202)	3-0	3	4	
MSE 307	Physical Metallurgy(pre MSE 201)	3-0	3	5	MSE 312	Numerical Methods and Modeling	2-2	3	5	
MSE 309	Mechanical Behavior of Materials (pre MSE 202)	3-0	3	5	MSE 314	Introduction to Nanoscience and Nanotechnology	3-0	3	5	
MSE 311	Materials Lab I (pre MSE 202)	2-2	3	5	MSE 316	Materials Lab II	2-2	3	5	
MSE 313	Introduction to Solid State Physics (pre MSE 215)	3-0	3	5	TE I	Technical elective	3-0	3	5	
				15					21	30

Seventh Semester					Eighth Semester					
Course Code	Course Name	Credit	ECTS		Course Code	Course Name	Credit	ECTS		
MSE 400	Summer Practice II	0-0	0	7	MSE 448	Introduction to Polymer Science	3-0	3	5	
MSE 451	Materials Design	3-0	3	7	MSE 452	Graduation Project	0-6	3	12	
MSE 479	Ceramic and Glass Materials	3-0	3	5	TE III	Technical Elective	3-0	3	5	
MAN 211	Corporate Communication and Management Skills for Engineers	3-0	0	3	TE IV	Technical Elective	3-0	3	5	
TE II	Technical Elective	3-0	3	5	NTE IV	Nontechnical elective	3-0	3	3	
NTE III	Nontechnical elective	3-0	3	3						
				12					15	30

Total: 140 242

Technical Elective Courses

Course Code	Course Name	Credit	ECTS
MSE 105	Materials in Design	3-0 3	5
MSE 211	Materials Science and Engineering	3-0 3	5
MSE 461	Composite Materials	3-0 3	5
MSE 462	Soft Materials	3-0 3	5
MSE 464	Extractive Metallurgy of non-Ferrous Materials	3-0 3	5
MSE 471	Spectroscopic Characterization of Materials	3-0 3	5
MSE 472	Materials in Bioscience	3-0 3	5
MSE 476	Electroceramic Materials and Electrochemical Devices	3-0 3	5
MSE 477	Iron and Steel Making	3-0 3	5
MSE 481	Smart Materials and Structures	3-0 3	5
MSE 483	Materials Degradation	3-0 3	5
MSE 484	Powder Metallurgy	3-0 3	5
MSE 485	Energetic Materials	3-0 3	5
MSE 486	Heat Treatment of Metals	3-0 3	5
MSE 488	Porous Materials	3-0 3	5
MSE 499	Cooperative Education Course	0-6 3	10