

UNDERGRADUATE CURRICULUM (2025)

**effective for students who start their first year in September 2025.

First Semester					Second Semester				
Course Code	Course Name	Credit		ECTS	Course Code	Course Name	Credit		ECTS
MSE 100	Introduction to Materials Science and Engineering	1-0	1	1	MSE 120	Introduction to Computer Programming	2-2	3	5
MSE 113	Computer Aided Engineering Graphics	2-2	3	5	CHEM 102	General Chemistry II	4-0	4	5
CHEM 101	General Chemistry I	4-0	4	5	CHEM 132	General Chemistry Lab II	0-4	2	2
CHEM 131	General Chemistry Lab I	0-4	2	2	ENG 102	Development of Reading and Writing Skills II	3-0	3	3
ENG 101	Development of Reading and Writing Skills I	3-0	3	3	MATH 142	Basic Calculus II	3-2	4	6
MATH 101	Precalculus	2-0	0	2	PHYS 102	General Physics II	4-0	4	5
MATH 141	Basic Calculus I	3-4	4	5	PHYS 112	General Physics Lab II	0-2	1	2
PHYS 101	General Physics I	4-0	4	5	GCC 101	Career Planning and Development	2-0	0	2
PHYS 111	General Physics Lab I	0-2	1	2					
				22					21
				30					30

Third Semester					Fourth Semester				
Course Code	Course Name	Credit		ECTS	Course Code	Course Name	Credit		ECTS
MSE 201	Materials Science I	4-0	4	6	MSE 202	Materials Science II	4-0	4	6
MSE 205	Materials Thermodynamics I	3-0	3	4	MSE 208	Materials Thermodynamics II	3-0	3	5
MSE 215	Materials Physics	3-0	3	5	MSE 210	Materials and Processes in Manufacturing	3-0	3	5
MATH 241	Calculus III	3-0	4	5	MSE 222	Applied Mathematics for MSE	4-0	4	7
MATH 255	Differential Equations	4-0	4	6	ELZ	Compulsory Elective	3-0	3	3
HIST 201	Principles of Atatürk I	2-0	0	2	HIST 202	Principles of Atatürk II	2-0	0	2
TURK 201	Turkish Language I	2-0	0	2	TURK 202	Turkish Language II	2-0	0	2
				18					17
				30					30

Fifth Semester					Sixth Semester				
Course Code	Course Name	Credit		ECTS	Course Code	Course Name	Credit		ECTS
MSE 301	Phase Diagrams	3-0	3	5	MSE 310	Materials Characterization	3-0	3	4
MSE 305	Transport Phenomena	3-0	3	5	MSE 312	Numerical Methods and Modeling	2-2	3	5
MSE 307	Physical Metallurgy	3-0	3	5	MSE 316	Materials Lab II	2-2	3	4
MSE 309	Mechanical Behavior of Materials	3-0	3	5	MSE 318	Introduction to Solid State Physics	3-0	3	5
MSE 311	Materials Lab I	2-2	3	5	ECON 205	Principles of Economics	3-0	3	4
ELZ	Compulsory Elective	0-0	0	7	TE I	Technical elective	3-0	3	5
				15	NTE I	Nontechnical elective	3-0	3	3
				32					21
									30

Seventh Semester					Eighth Semester				
Course Code	Course Name	Credit		ECTS	Course Code	Course Name	Credit		ECTS
MSE 451	Materials Engineering Design I	3-0	3	5	MSE 448	Introduction to Polymer Science	3-0	3	5
MSE 479	Ceramic and Glass Materials	3-0	3	5	ELZ	Compulsory Elective	0-6	3	12
MAN 211	Corporate Communication and Management Skills for Engineers	3-0	0	3	TE III	Technical Elective	3-0	3	5
ELZ	Compulsory Elective	0-0	0	9	TE IV	Technical Elective	3-0	3	5
TE II	Technical Elective	3-0	3	5	NTE III	Nontechnical elective	3-0	3	3
NTE II	Nontechnical elective	3-0	3	3					
				12					15
				30					30

Total: 141 242

Compulsory Elective Courses

Course Code	Course Name	Credit	ECTS
MSE 300	Summer Practice I	0-0 0	7
MSE 302	Technical Writing and Communication	3-0 3	3
MSE 400	Summer Practice II	0-0 0	9
MSE 452	Materials Engineering Design II(pre MSE 451)	0-6 3	12

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 422	Introduction to Packing Technology	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 473	Physical Properties of Crystals	3-0 3	5
MSE 474	Applied Numerical Methods	2-2 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 489	Supplementary Curricular Courses	3-0 3	5
MSE 499	Cooperative Education Course	0-6 3	10