

1. MÜFREDAT/ THE 1st CURRICULUM (FROM 2020-2021 FALL TERM)

DEPARTMENT OF MECHANICAL ENGINEERING / UNDERGRADUATE EDUCATION PROGRAM CURRICULUM WITH PRE-REQUISITE COURSES

FALL

FIRST YEAR

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MATH 101	Calculus I	4	0	6	
PHYS 101	Physics I	3	0	4	
PHYS 103	Physics I Lab.	0	2	2	
CHEM 101	General Chemistry	3	0	5	
MCE 101	Introduction to Mechanical Engineering	2	0	2	
MCE 103	Computer Aided Technical Drawing I	2	2	5	
ENG 101	Academic English I	3	0	4	
TİT 101	Türk İnkılap Tarihi I	2	0	1	
TDL 101	Türk Dili I	2	0	1	
Total		21	4	30	

SPRING

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MATH 102	Calculus II	4	0	6	
PHYS 102	Physics II	3	0	4	
PHYS 104	Physics II Lab.	0	2	2	
MCE 102	Statics	4	0	5	PHYS 101 Physics I
MCE 104	Computer Aided Technical Drawing II	2	2	3	MCE 103 Computer Aided Technical Drawing I
MCE 106	Computer Programming	2	2	4	
ENG 102	Academic English II	3	0	4	
TİT 102	Türk İnkılap Tarihi II	2	0	1	
TDL 102	Türk Dili II	2	0	1	
Total		22	6	30	
Year Total		43	10	60	
General Total		43	10	60	

SECOND YEAR

Course Code	Course Title	T	L/A	ECTS	Prerequisite
ENGR 201	Engineering Mathematics I	4	0	6	
MCE 201	Material Science	2	1	3	
MCE 203	Thermodynamics I	3	0	5	
MCE 205	Strength of Materials I	3	0	5	MCE 102 Statics
MCE 209	Manufacturing Technologies I	2	1	4	
ENGR 201	Technical English	3	0	4	
ENGR 260	Principles of Occupational Health And Safety	2	0	3	
Total		19	2	30	

Course Code	Course Title	T	L/A	ECTS	Prerequisite
ENGR 202	Engineering Mathematics II	4	0	6	MATH 101 Calculus I, Calculus II
MCE 204	Thermodynamics II	3	0	5	MCE 203 Thermodynamics I
MCE 210	Strength of Materials II	3	0	5	MCE 205 Strength of Materials I
MCE 206	Dynamics	3	1	4	MCE 102 Statics
MCE 207	Principles of Electrical and Electronics Engineering	2	0	3	
MCE 212	Manufacturing Technologies II	2	1	4	MCE 209 Manufacturing Technologies I
	University Elective (UE)	2	0	3	
Total		19	2	30	
Year Total		38	4	60	
General Total		81	14	120	

THIRD YEAR

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 301	Fluid Mechanics I	3	0	5	ENGR 202 Engineering Mathematics II and MCE 206 Dynamics
MCE 303	Mechanisms	2	0	4	
MCE 305	Machine Elements I	3	1	5	MCE 210 Strength of Materials II
MCE 307	Heat Transfer	4	0	5	ENGR 202 Engineering Mathematics II and MCE 203 Thermodynamics I
MCE 309	System Dynamics and Control	3	0	5	ENGR 202 Engineering Mathematics II and MCE 206 Dynamics
MCE 311	Engineering Economy	2	0	2	
MCE 300	Industrial Practice I	0	1	4	
Total		17	2	30	

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 302	Measurement and Data Evaluation	3	0	4	
MCE 306	Machine Elements II	2	2	5	MCE 305 Machine Elements I
MCE 304	Dynamics of Machinery	3	0	5	MCE 206 Dynamics and MCE 303 Mechanisms
MCE 308/ MCE310	Computer Aided Design of Mechanical Systems/Thermal System Design	3	0	3	
MCE 320	Thermal Power Engineering	3	0	4	MCE 204 Thermodynamics II
MCE 314	Numerical Methods for Engineers	3	0	4	MATH 101 Calculus I and MATH 102 Calculus II
MCE 316	Fluid Mechanics II	3	0	5	MCE 301 Fluid Mechanics I
Total		20	2	30	
Year Total		20	2	60	
General Total		101	16	180	

FOURTH YEAR

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 401	Graduation Project I	3	3	6	MCE 306 Machine Elements II and MCE 204 Thermodynamics II
MCE 403	Machinery Laboratory I	1	2	4	MCE 302 Measurement and Data Evaluation
	Department Elective (DE1)	3	0	5	
	Department Elective (DE2)	3	0	5	
	Faculty Elective (FE)	2	0	3	
	Faculty Elective (FE)	2	0	3	
MCE 400	Industrial Practice II	0	1	4	
	Total	11	3	30	

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 402	Graduation Project II	3	3	6	MCE 401 Graduation Project I
MCE 404	Machinery Laboratory II	1	2	4	MCE 403 Machinery Laboratory I
	Department Elective (DE3)	3	0	5	
	Department Elective (DE4)	3	0	5	
	Department Elective (DE5)	3	0	5	
	Department Elective (DE6)	3	0	5	
	Total	16	5	30	
	Year Total	27	8	60	
	General Total	128	24	240	

DEPARTMENT ELECTIVE COURSES

DE1, DE2, DE3, DE4, DE5, DE6 COURSES

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 411	Energy Management	3	0	5	
MCE 413	Refrigeration Technology	3	0	5	MCE 204 Thermodynamics II
MCE 415	Natural Gas Installations	3	0	5	
MCE 417	Geothermal Energy	3	0	5	
MCE 419	Steam Boilers	3	0	5	MCE 204 Thermodynamics II, MCE 307 Heat Transfer
MCE 421	Application of Solar Energy	3	0	5	MCE 307 Heat Transfer
MCE 423	Heat Exchangers	3	0	5	MCE 307 Heat Transfer
MCE 431	Theory of Machining and Machine Tools	3	0	5	MCE 208 Manufacturing Technologies II
MCE 432	Numerically Controlled Machine Tools	3	0	5	MCE 209 Manufacturing Technologies I
MCE 433	Finite Elements Method	3	0	5	MCE 201 Engineering Mathematics I, ENGR 202 Engineering Mathematics II
MCE 435	Press Working Technologies	3	0	5	
MCE 445	Optimization Techniques in Manufacturing Processes	3	0	5	MCE 208 Manufacturing Technologies II
MCE 447	Intellectual Property and Innovation	3	0	5	
MCE 451	Robotics	3	0	5	MCE 304 Dynamics of Machinery
MCE 453	Introduction to Mechatronics	3	0	5	MCE 304 Dynamics of Machinery
MCE 455	Mechatronic System Design	3	0	5	MCE 304 Dynamics of Machinery, MCE 309 System Dynamics and Control
MCE 461	Transport Techniques	3	0	5	MCE 306 Machine Elements II
MCE 463	Principles of Project Preparation	3	0	5	
MCE 465	Introduction to Biomechanics	3	0	5	MCE 210 Strength of Materials II
MCE 467	Techniques of Critical and Analytical Thinking	3	0	5	
MCE 469	Measuring Techniques and Quality Control	3	0	5	MCE 302 Measurement and Data Evaluation
MCE 471	Experimental Mechanics	3	0	5	MCE 210 Strength of Materials II

Course Code	Course Title	T	L/A	ECTS	Prerequisite
MCE 412	Wind Energy and Technologies	3	0	5	
MCE 414	Air Conditioning Technologies	3	0	5	
MCE 416	Hydraulic Machineries	3	0	5	MCE 204 Thermodynamics II
MCE 418	Metallurgical Thermodynamics	3	0	5	MCE 316 Fluid Mechanics II
MCE 420	Gas Dynamics	3	0	5	MCE 203 Thermodynamics I
MCE 427	Vehicles	3	0	5	MCE 316 Fluid Mechanics II, MCE 203 Thermodynamics I
MCE 434	Introduction to Fracture Mechanics	3	0	5	MCE 206 Dynamics
MCE 436	Work Dies Technology	3	0	5	MCE 210 Strength of Materials II
MCE 438	Computer Aided Manufacturing (CAM)	3	0	5	MCE 432 Numerically Controlled Machine Tools
MCE 442	Material Inspection	3	0	5	MCE 201 Material Science
MCE 444	Modern Welding Methods	3	0	5	MCE 208 Manufacturing Technologies II
MCE 452	Mechanical Vibrations	3	0	5	MCE 206 Dynamics
MCE 454	Acoustics and Noise Control	3	0	5	
MCE 456	Vibration Based Predictive Maintenance	3	0	5	
MCE 458	Internal Combustion Engines	3	0	5	MCE 204 Thermodynamics II, MCE 307 Heat Transfer
MCE 466	Automotive Engineering	3	0	5	MCE 320 Thermal Power Engineering
MCE 468	Building Installation	3	0	5	MCE 316 Fluid Mechanics II
MCE 470	Hydraulic and Pneumatic Automation	3	0	5	MCE 316 Fluid Mechanics II, MCE 309 System Dynamics and Control
MCE 472	Composite Materials	3	0	5	MCE 201 Materials Science
MCE 474	Machine Design	3	0	5	MCE 306 Machine Elements II
MCE 476	Nondestructive Testing Methods	3	0	5	
MCE 478	Power Plants	3	0	5	MCE 204 Thermodynamics II, MCE 307 Heat Transfer

MCE 425	Numerical Heat Transfer	3	0	5	MCE 307 Heat Transfer, MCE 314 Numerical Methods for Engineers
MCE 473	Heating and Ventilating	3	0	5	MCE 307 Heat Transfer, MCE 316 Fluid Mechanics II
MCE 477	Renewable Energy Modeling	3	0	5	MCE 204 Thermodynamics II
MCE 479	Design and Analysis of Composite Structures	3	0	5	MCE 306 Machine Elements II

MCE 480	Fundamental CFD Applications Using Open FOAM	3	0	5	MCE 316 Fluid Mechanics II
MCE 482	Introduction to Vibration Control	3	0	5	MCE 309 System Dynamics and Control
MCE 484	Aeial Robots	3	0	5	