

**SABANCI UNIVERSITY - FACULTY OF ENGINEERING AND NATURAL SCIENCES
MECHATRONICS PROGRAM RECOMMENDED COURSE PROGRAM**

Year -1 Freshman Semester-1							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
MATH102	Calculus I	University C.		3			6
NS101	Science of Nature I	University C.		4			6
CP101N	Civic Involvement Projects I	University C.		0			1
HIST191	Principles of Atatürk and the History of the Turkish Republic	University C.		2			3
SP100	Humanity and Society I	University C.		3			6
TL101	Turkish Language and Literature I	University C.		2			3
F100	Computational Approaches to Problem Solving	University C.		3			5
PROJ 201	Undergraduate Project Course			1			1
TERM TOTAL				18			35

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year -1 Freshman Semester-2							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
MATH102	Calculus II	University C.		3			6
NS102	Science of Nature II	University C.		4			6
AL102	Academic Literacies	University C.		3			5
HIST192	Principles of Atatürk and the History of the Turkish Revolution II	University C.		2			3
SP102	Humanity and Society II	University C.		3			6
TL102	Turkish Language and Literature II	University C.		2			3
PHYS143	Basic Concepts of Physics for Scientists and Engineers	Faculty Course		3	0	6	6
PROJ 201	Undergraduate Project Course			1			1
TERM TOTAL				20			35

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year -2 Sophomore Semester-3							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
PROJ 201	Undergraduate Project Course			1			1
CS201	Introduction to Computing	Req.	IF100	3			6
ENS203	Electronic Circuits I	Req.	MATH102	3			6
ENS204	Mechanics	Req.	MATH102 NS101	3			6
MATH212	Linear Algebra and Differential Equations	Req.	MATH102	4			6
HUM204	Major Works	University C.		3			5
TERM TOTAL				16			29

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year -2 Sophomore Semester-4							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
PROJ 201	Undergraduate Project Course			1			1
ENS206	Systems Modeling & Control	Req.	MATH 201 or MATH212	3			6
ENS214	Dynamics	Req.		3			6
SPS303	Law and Ethics	University C.		3			6
CORE/AREA/FREE				3			6
CORE/AREA/FREE				3			6
TERM TOTAL				18			35

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year -3 Junior Semester-5							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
ME301	Mechanical Systems I	Req.	ENS204	3			6
ME303	Control Systems Design	Req.	ENS206	3	3		6
CORE/AREA/FREE				3	3		6
CORE/AREA/FREE				3	3		6
CORE/AREA/FREE				3	3		6
TERM TOTAL				15			30

Year -3 Junior Semester-6							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
ME305	Power Electronics	Req.	ENS214 & later	3			6
ENS311	Numerical Analysis	Req.	(2025 & later)	CS 201	3		6
CORE/AREA/FREE				3			6
CORE/AREA/FREE				3			6
CORE/AREA/FREE				3			6
TERM TOTAL				15			30

Year -3 Junior SUMMER							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Engineering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
ME395	Summer Internship	Required C.		0			5

Year -4 Senior							
Course Code	Course Name	Course Type	Prerequisite Course	SU Credits	Engineering	Basic Science	ECTS
ME425	Autonomous Mobile Robotics	Req. ** (2025 & later)	ENS 206 or ENS 211	3	5	1	6
CS404	Artificial Intelligence	Req. ** (2025 & later)	CS 201 or DSA 201	3			6
ENS491	Graduation Project	Req.	ME 301 or ME 303	1	2	0	2
CORE/AREA/FREE				3			6
CORE/AREA/FREE				3			6
TERM TOTAL				13			26

*Students are required to take ME 425 OR ME 403.
**Students are required to take CS 412 OR CS 404.

Year -4 Senior							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Engineering	Basic Science	ECTS
ME403	Introduction to Robotics	Req. * (2025 & later)	ENS 206	4	6	1	7
CS412	Machine Learning	Req. ** (2025 & later)	(MATH 201 or MATH 212 and MATH 203)	3			6
ENS493	Graduation Project	Req.		3	5	0	5
CORE/AREA/FREE				3			6
CORE/AREA/FREE				3			6
TERM TOTAL				16			30

*Students are required to take ME 425 OR ME 403.
**Students are required to take CS 412 OR CS 404.

SU CREDITS TOTAL: 131
ECTS CREDITS TOTAL: 251

TRACK ELECTIVE COURSES

DESCRIPTIONS: These are not official tracks but are suggestions for those interested in concentrating in a particular area in Mechatronics Engineering Program

1. Suggested Courses for Robotics & Control, R&C			
Course Name	SU Credits	ECTS	
ENS211	Signals		
ME304	Motion Control		
ME308	Industrial Control		
ME312	Analysis & Synthesis of Mechanisms		
ME403	Introduction to Robotics		
ME425	Autonomous Mobile Robotics		
ENS409	Numerical Analysis		
CS404	Artificial Intelligence		
EE417	Computer Vision		
CS412	Machine Learning		
ME407	Embedded Systems		
ME441	Advanced Vehicle Systems		

3. Suggested Courses Electronics & Computing, E&C			
Course Code	Course Name	SU Credits	ECTS
CS304	Advanced Programming		
EE200	Electronic Circuit Applications		
EE203	Electronic Circuits II		
ENS211	Signals		
CS303	Logic & System Design		
EE312	Discrete-Time Signals & Systems		
EE308	Microcomputer Based System Design		
ENS309	Computer Aided Engineering		
CS404	Artificial Intelligence		
CS412	Machine Learning		
ME402	Pneumatics		
EE404	Introduction to Microelectromechanical Systems		
EE407	Microelectronic Fabrication		
EE473	Biomedical Instrumentation		
ME415	Computational Analysis & Simulation		
ENS409	Numerical Analysis		

2. Suggested Courses for Mechanical Systems & Design, MS&D			
Course Code	Course Name	SU Credits	ECTS
ENS202	Thermodynamics		
ENS205	Introduction to Material Systems		
ENS207	Introduction to Energy Systems		
ENS209	Introduction to Computer Aided Drafting & Solid Modeling		
ENS214	Dynamics		
ME312	Analysis & Synthesis of Mechanisms		
EE309	Manufacturing Processes I		
ME302	Mechanical Systems II		
ME307	Fluid Dynamics		
ME309	Heat & Mass Transfer		
ME405	Mechanical Vibrations		
ME412	Introduction to FEM		
ME420	Renewable & Sustainable Energy Systems		
ME441	Advanced Vehicle Systems		
EE402	Integrated Manufacturing		