

SABANCI UNIVERSITY - FACULTY OF ENGINEERING AND NATURAL SCIENCES INDUSTRIAL ENGINEERING PROGRAM RECOMMENDED COURSE PLAN

Year 1 Freshman – Semester 1							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
MATH 101	Calculus I	University C.		3	0	6	6
NS 101	Science of Nature I	University C.		4	0	6	6
CIP 101N	Civic Involvement Projects I	University C.		0	0	0	1
HIST 191	Principles of Atatürk and the History of the Turkish Revolution I	University C.		2	0	0	3
SPS 101	Humanity and Society I	University C.		3	0	0	6
TLL 101	Turkish Language and Literature I	University C.		2	0	0	3
IF 100	Computational Approaches to Problem Solving	University C.		3	5	0	5
TERM TOTAL				17	5	12	30

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	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
PROJ 201	Undergraduate Project Course	University C.		1	1	0	1
ENS 208	Introduction to Industrial Engineering	Required	IF 100 & MATH 102	3	6	0	6
DSA 201	Advanced Programming for Data Science	Required	IF 100	3	3	3	6
MATH 212	Linear Algebra and Differential Equations	Required	IF 100	4	0	7	7
MATH 203	Introduction to Probability	Required	MATH 102	3	0	6	6
CORE	Core Course	Core		3	0	0	6
TERM TOTAL				17	10	16	32

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	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
IE 312	Operations Research II	Required	IE 311	3	5	1	6
IE 303	Decision Economics	Required		3	6	0	6
IE 305	Simulation	Required	MATH 306	3	5	1	6
AREA	Area Elective	Area		3			6
CORE	Core Course	Core		3			6
FREE	Free Elective	Free		3			6
TERM TOTAL				18	16	2	36

Year 3 Junior – Summer							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
IE 395	Internship Project	Required	PROJ 201 & Junior Standing	0	5	0	5
TERM TOTAL				0	5	0	5

Year 4 Senior – Semester 7							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
ENS 491	Graduation Project – Design	Required	IE 305 OR IE 312 & 80 credits	1	2	0	2
CORE	Core Course	Core		3			6
CORE	Core Course	Core		3			6
AREA	Area Elective	Area		3			6
FREE	Free Elective	Free		3			6
FREE	Free Elective	Free		3			6
TERM TOTAL				16	2	0	32

SU CREDITS TOTAL: 130
ECTS CREDITS TOTAL: 252 (minimum required 240)

TRACK ELECTIVE COURSES

Descriptions: These are not official tracks but are suggestions for concentration areas in Industrial Engineering.

1. Suggested Courses for Industrial Engineering and Production and Service Systems Track			
Course Code	Course Name	SU Credits	ECTS
IE 306	Human Factors Engineering	3	5
IE 413	Information Systems	3	5
IE 409	Project Scheduling and Management	3	6
IE 414	Manufacturing and Digitalization Strategies	3	6
IE 417	Facilities and Material Handling Design	3	6
IE 304	Production and Service Systems Planning and Design	3	6
IE 401	Production and Service Systems Operations	3	6

3. Suggested Courses for Industrial Engineering and Software Engineering Track			
Course Code	Course Name	SU Credits	ECTS
MATH 204	Discrete Mathematics	3	6
CS 300	Data Structures	3	6
CS 301	Algorithms	3	6
CS 305	Programming Languages	3	6
CS 306	Database Systems	3	6
CS 308	Software Engineering	4	7
CS 404	Artificial Intelligence	3	6
CS 408	Computer Networks	3	6
IE 413	Information Systems	3	5

Year 1 Freshman – Semester 2							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
MATH 102	Calculus II	University C.	MATH 101	3	0	6	6
NS 102	Science of Nature II	University C.	NS 101	4	0	6	6
AL 102	Academic Literacies	University C.		3	0	0	5
HIST 192	Principles of Atatürk and the History of the Turkish Revolution II	University C.	HIST 191	2	0	0	3
SPS 102	Humanity and Society II	University C.	SPS 101	3	0	0	6
TLL 102	Turkish Language and Literature II	University C.	TLL 101	2	0	0	3
TERM TOTAL				17	0	12	29

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

Year 2 – Semester 4							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
IE 311	Operations Research I	Required	ENS 208 & MATH 201	3	4	2	6
PHYS 113 **	Basic Concepts of Physics for Scientists and Engineers	Required	NS 101 & MATH 101	3	0	7	7
MATH 306	Statistical Modelling	Required	MATH 203	3	0	6	6
CORE	Core Course	Core		3	0	6	6
HUM2	Humanities Elective	University C.		3	0	0	5
TERM TOTAL				15	4	20	30

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year. ** PHYS 113 can be taken in any of the semesters during sophomore year.

Year 3 Junior – Semester 6							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
IE 313	Operations Research III	Required	IE 305	3	4	2	6
CORE	Core Course	Core		3			6
CORE	Core Course	Core		3			6
FREE	Free Elective	Free		3			6
SPS 303	Law and Ethics	University C.		3	0	0	5
TERM TOTAL				15	4	2	29

Year 4 Senior – Semester 8							
Course Code	Course Name	Course Type	Prerequisite	SU Credits	Eng. Credits (ECTS)	Basic Sci. Credits (ECTS)	ECTS Total
ENS 492	Graduation Project – Implementation	Required	ENS 491	3	5	0	5
CORE	Core Course	Core		3			6
CORE	Core Course	Core		3			6
AREA	Area Elective	Area		3			6
FREE	Free Elective	Free		3			6
TERM TOTAL				15	5	0	29

2. Suggested Courses for Industrial Engineering and Integrated Manufacturing Track			
Course Code	Course Name	SU Credits	ECTS
ENS 204	Mechanics	3	6
IE 408	Reliability and Maintenance Analysis	3	6
ME 308	Industrial Control	3	6
ME 403	Introduction to Robotics	3	6
CS 408	Computer Networks	3	6
EE 404	Introduction to Microelectromechanical Systems	3	6
ENS 209	Introduction to Computer Aided Drafting and Solid Mod	3	6
IE 309	Manufacturing Processes I	3	6
IE 402	Integrated Manufacturing Systems	3	6
IE 416	Additive Manufacturing	3	6

4. Suggested Courses for Industrial Engineering and Operations Research Track			
Course Code	Course Name	SU Credits	ECTS
IE 408	Reliability and Maintenance Analysis	3	6
IE 405	Decision Analysis	3	6
IE 411	Modeling and Analysis of Large Systems	3	6
CS 404	Artificial Intelligence	3	6
CS 406	Parallel Computing	3	6
CS 407	Theory of Computation	3	6
ENS 409	Numerical Analysis	3	6
IE 501	Linear Programming and Extensions	3	10
IE 503	Stochastic Processes	3	10