



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI DERS PLANLARI

ANABİLİM DALI		ENDÜSTRİ MÜHENDİSLİĞİ															
BİLİM DALI / PROGRAMI		ENDÜSTRİ MÜHENDİSLİĞİ / Yüksek Lisans Programı															
DERS AŞAMASI	I. YARIYIL / GÜZ								II. YARIYIL / BAHAR								
	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	
	END5101	MATEMATİKSEL PROGRAMLAMA	Z	3	0	0	3	7.5	END	SEÇMELİ DERS	S					7.5	
	END	SEÇMELİ DERS	S					7,5	END	SEÇMELİ DERS	S					7,5	
	END	SEÇMELİ DERS	S					7,5	END	SEÇMELİ DERS	S					7,5	
	SEÇMELİ DERS *	S					7,5		SEÇMELİ DERS *	S					7,5		
Toplam Kredi							12	30	Toplam Kredi							12	30
TEZ AŞAMASI	III. YARIYIL / GÜZ								IV. YARIYIL / BAHAR								
	END5181	YL UZMANLIK ALAN DERSİ I	Z	4	0	0	0	5	END5182	YL UZMANLIK ALAN DERSİ II	Z	4	0	0	0	5	
	END5173	SEMİNER	Z	0	0	0	0	5	END5192	TEZ DANIŞMANLIĞI II	Z	0	0	0	0	25	
	END5191	TEZ DANIŞMANLIĞI I	Z	0	0	0	0	18									
	END5000	END. MÜH. ARAŞTIRMA TEKNİKLERİ VE YAYIN ETİĞİ	Z	2	0	0	2	2									
Toplam Kredi							2	30	Toplam Kredi							0	30
TOPLAM KREDİ: 26 - TOPLAM AKTS: 120																	

Not: Her yarıyıl Zorunlu ve Seçmeli derslere en az 30 AKTS ders kaydı yapılır. I ve II. yarıyılarda Z ve S gruplarından toplamda en az 8 adet ders alınır.

(*) S grubuna sayılmak üzere öğrencinin danışmanı ve Ana Bilim Dalı Başkanlığının onayı ile farklı yüksek lisans programlarından en fazla 2 ders alınabilir.

Anabilim Dalının doktora programından alınacak ders de alan dışı kabul edilmektedir.



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI DERS PLANLARI (SEÇMELİ DERSLER)

ANABİLİM DALI

ENDÜSTRİ MÜHENDİSLİĞİ

BİLİM DALI / PROGRAMI


ENDÜSTRİ MÜHENDİSLİĞİ / Yüksek Lisans Programı

DERS AŞAMASI	I. YARIYIL / GÜZ								II. YARIYIL / BAHAR							
	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS
	END5113	BİLGİSAYAR DESTEKLİ İMALAT	S	3	0	0	3	7,5	END5110	ÜRETİM SİSTEMLERİ	S	3	0	0	3	7,5
	END5115	SİMÜLASYON ANALİZİ	S	3	0	0	3	7,5	END5112	İŞ SIRALAMA VE ÇİZELGELEME	S	3	0	0	3	7,5
	END5121	ALGORİTMA TASARIMI VE ANALİZİ	S	3	0	0	3	7,5	END5114	ENVANTER SİSTEMLERİNİN ANALİZİ	S	3	0	0	3	7,5
	END5123	SEZGİSEL ALGORİTMALAR	S	3	0	0	3	7,5	END5116	TESİS YERİ SEÇİMİ İŞ YERİ DÜZENLEME	S	3	0	0	3	7,5
	END5131	TOPLAM KALİTE YÖNETİMİ	S	3	0	0	3	7,5	END5132	MÜHENDİSLİK EKONOMİSİ ANALİZİ	S	3	0	0	3	7,5
	END5151	İSTATİSTİKSEL VERİ ANALİZİ	S	3	0	0	3	7,5	END5134	TEKNOLOJİ YÖNETİMİ	S	3	0	0	3	7,5
	END5153	DENEYSEL TASARIM	S	3	0	0	3	7,5	END5136	STRATEJİK KARAR DESTEK SİSTEMLERİ	S	3	0	0	3	7,5
	END5155	STOKASTİK SÜREÇLER	S	3	0	0	3	7,5	END5156	GÜVENİLİRLİK MÜHENDİSLİĞİ	S	3	0	0	3	7,5
	END5117	İMALAT SÜREÇLERİNİN KONTROLÜ	S	3	0	0	3	7,5	END5140	GÜRÜLTÜ ETKİ DEĞERLENDİRMESİ	S	3	0	0	3	7,5
	END5119	SÜRDÜRÜLEBİLİR MÜHENDİSLİK	S	3	0	0	3	7,5	END5138	ÇOK KRİTERLİ KARAR VERME	S	3	0	0	3	7,5
									END5142	VERİ MADENCİLİĞİ	S	3	0	0	3	7,5
									END5122	GÖMÜLÜ OPTİMİZASYON TEKNİKLERİ	S	3	0	0	3	7,5
									END5124	KISIT PROGRAMLAMA	S	3	0	0	3	7,5

Not: Her yarıyıl Zorunlu ve Seçmeli derslere en az 30 AKTS ders kaydı yapılır. I ve II. yarıyılarda Z ve S gruplarından toplamda en az 8 adet ders alınır.

(*) S grubuna sayılmak üzere öğrencinin danışmanı ve Ana Bilim Dalı Başkanlığının onayı ile farklı yüksek lisans programlarından en fazla 2 ders alınabilir.

Anabilim Dalının doktora programından alınacak ders de alan dışı kabul edilmektedir.

 ULUDAĞ UNIVERSITY GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES 2020-2021 ACADEMIC YEAR COURSE PLAN																	
DEPARTMENT OF		INDUSTRIAL ENGINEERING															
DEPARTMENT / PROGRAM		INDUSTRIAL ENGINEERING / Master's Degree Program															
COURSE STAGE	I. TERM / FALL								II. TERM / SPRING								
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS	
	END5101	MATHEMATICAL PROGRAMMING	C	3	0	0	3	7.5	END	ELECTIVE COURSE	E					7.5	
	END	ELECTIVE COURSE	E					7.5	END	ELECTIVE COURSE	E					7.5	
	END	ELECTIVE COURSE	E					7.5	END	ELECTIVE COURSE	E					7.5	
	ELECTIVE COURSE *	E					7.5		ELECTIVE COURSE *	E					7.5		
Total Credits							12	30	Total Credits							12	30
STAGE THESIS	III. TERM / FALL								IV. TERM / SPRING								
	END5181	ADVANCED TOPICS IN MS THESIS I	C	4	0	0	0	5	END5182	ADVANCED TOPICS IN MS THESIS II	C	4	0	0	0	5	
	END5173	SEMINAR	C	0	0	0	0	5	END5192	MS THESIS II	C	0	0	0	0	25	
	END5191	MS THESIS I	C	0	0	0	0	18									
	END5000	RESEARCH TECHNIQUES AND PUBLICATION ETHICS IN INDUSTRIAL ENGINEERING	C	2	0	0	2	2									
Total Credits							2	30	Total Credits							0	30
TOTAL CREDITS: 26 - TOTAL ECTS: 120																	

Note: The student is expected to register at least 30 ECTS compulsory and elective courses in every academic term. In terms I and II, minimum 8 courses must be taken from C and E groups in total.

(*) The student has the option of choosing one elective course from another department with the approval of the supervisor and Head of Department.

An elective course from the doctorate program of the department is accepted as out of field course.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN (ELECTIVE COURSES)

DEPARTMENT OF	INDUSTRIAL ENGINEERING
DEPARTMENT / PROGRAM	INDUSTRIAL ENGINEERING / Master's Degree Program

COURSE STAGE	I. TERM / FALL								II. TERM / SPRING							
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS
	END5113	COMPUTER AND MANUFACTURING	E	3	0	0	3	7.5	END5110	PRODUCTION SYSTEMS	E	3	0	0	3	7.5
	END5115	SIMULATION ANALYSIS	E	3	0	0	3	7.5	END5112	JOB SEQUENCING AND SCHEDULING	E	3	0	0	3	7.5
	END5121	DESIGN AND ANALYSIS OF ALGORITHMS	E	3	0	0	3	7.5	END5114	ANALYSIS OF INVENTORY SYSTEMS	E	3	0	0	3	7.5
	END5123	HEURISTIC ALGORITHMS	E	3	0	0	3	7.5	END5116	FACILITY LOCATION AND LAYOUT	E	3	0	0	3	7.5
	END5131	TOTAL QUALITY MANAGEMENT	E	3	0	0	3	7.5	END5132	ENGINEERING ECONOMY	E	3	0	0	3	7.5
	END5151	STATISTICAL DATA ANALYSIS	E	3	0	0	3	7.5	END5134	TECHNOLOGY MANAGEMENT	E	3	0	0	3	7.5
	END5153	EXPERIMENTAL DESIGN	E	3	0	0	3	7.5	END5136	STRATEGIC DECISION SUPPORT SYSTEMS	E	3	0	0	3	7.5
	END5155	STOCHASTIC PROCESSES	E	3	0	0	3	7.5	END5156	RELIABILITY ENGINEERING	E	3	0	0	3	7.5
	END5117	MANUFACTURING PROCESSES CONTROL	E	3	0	0	3	7.5	END5140	NOISE IMPACT ENGINEERING	E	3	0	0	3	7.5
	END5119	SUSTAINABLE ENGINEERING	E	3	0	0	3	7.5	END5138	MULTICRITERIA DECISION MAKING	E	3	0	0	3	7.5
									END5142	DATA MINING	E	3	0	0	3	7.5
									END5122	EMBEDDED OPTIMIZATION TECHNIQUES	E	3	0	0	3	7.5
									END5124	CONSTRAINT PROGRAMMING	E	3	0	0	3	7.5

Note: The student is expected to register at least 30 ECTS compulsory and elective courses in every academic term. In terms I and II, minimum 8 courses must be taken from C and E groups in total.

(*) The student has the option of choosing one elective course from another department with the approval of the supervisor and Head of Department.

An elective course from the doctorate program of the department is accepted as out of field course.



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI ZORUNLU DERSLER

MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ
TEZSİZ YÜKSEK LİSANS PROGRAMI

Kodu/Grubu	Dersin Adı	T	U	L	Kredi	AKTS	Önkoşul
END5590	MÜHENDİSLİK TEKNOLOJİ YÖNETİMİ VE GİRİŞİMCİLİK PROJESİ	3	0	0	3	7.5	
S-1	KARAR ANALİZİ SEÇİMLİK GRUBU				6 (2 ders)	15	
S-2	YATIRIM PLANLAMA SEÇİMLİK GRUBU				3 (1 ders)	7.5	
S-3	KALİTE YÖNETİMİ SEÇİMLİK GRUBU				3 (1 ders)	7.5	
S-4	ÖRGÜT YÖNETİMİ SEÇİMLİK GRUBU				6 (2 ders)	15	
S-5	İŞLETME YÖNETİMİ SEÇİMLİK GRUBU				6 (2 ders)	15	
S-6	TEKNOLOJİ YÖNETİMİ SEÇİMLİK GRUBU				9 (3 ders)	22.5	
Toplam Kredi					36	90	

Not: Öğrencinin, programı üç yarıylda her yarıyıl toplam 12 kredilik (30 AKTS) ders seçerek tamamlaması önerilmektedir.
Seçmeli Dersler ilgili gruplardan program gerekliliklerini sağlayacak şekilde açıldığı dönemlerde serbest olarak seçilir.
END5590 Mühendislik Teknoloji Yönetimi ve Girişimcilik Projesi üçüncü yarıylda alınır.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN

ENGINEERING AND TECHNOLOGY MANAGEMENT
MASTER OF SCIENCE DEGREE PROGRAM (WITHOUT THESIS)

Code/Group	Course Title	T	U	L	Credit	ECTS	Prereq.
END5590	Engineering Technology Management and Entrepreneurship Project	3	0	0	3	7.5	
S-1	Decision Analysis Electives				6 (2 courses)	15	
S-2	Investment Planning Electives				3 (1 course)	7.5	
S-3	Quality Management Electives				3 (1 course)	7.5	
S-4	Organizational Management Electives				6 (2 courses)	15	
S-5	Business Management Electives				6 (2 courses)	15	
S-6	Technology Management Electives				9 (3 courses)	22.5	
Total Credits					36	90	

Note: The students are expected to register a total of 12 credits (30 ECTS) courses every academic term in order to complete the program in three terms.
Recommended electives from each group can be freely selected at each term..
Student may register to END5590 Engineering Technology Management and Entrepreneurship Project in the third term.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN (ELECTIVE COURSES)

DEPARTMENT OF	INDUSTRIAL ENGINEERING
DEPARTMENT / PROGRAM	INDUSTRIAL ENGINEERING / M.S. Program in Engineering and Technology Management (Without Thesis)

COURSE STAGE	I. TERM / FALL								II. TERM / SPRING									
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS		
	END5501	Probability and Statistics in Engineering	S-1	3	0	0	3	7.5	END5502	Applied Operations Research *	S-1	3	0	0	3	7.5		
	END5511	Engineering Economy	S-2	3	0	0	3	7.5	END5504	Engineering Optimization	S-1	3	0	0	3	7.5		
	END5531	Leadership and Management For Engineers	S-4	3	0	0	3	7.5	END5513	Engineering Project Management	S-2	3	0	0	3	7.5		
	END5541	Accounting and Finance For Engineers	S-5	3	0	0	3	7.5	END5524	Lean Production and Service Management	S-3	3	0	0	3	7.5		
	END5551	Strategic Technology Management	S-6	3	0	0	3	7.5	END5532	Human Factors Engineering	S-4	3	0	0	3	7.5		
	END5555	Information Systems Management	S-6	3	0	0	3	7.5	END5534	Organizational Behavior and Communication	S-4	3	0	0	3	7.5		
									END5544	Entrepreneurship	S-5	3	0	0	3	7.5		
									END5542	Financial Research and Development	S-5	3	0	0	3	7.5		
									END5552	Product Design and Development	S-6	3	0	0	3	7.5		
									END5562	Environmental Health and Safety Management	S-6	3	0	0	3	7.5		
									END5554	Supply Chain Management	S-6	3	0	0	3	7.5		
									END5560	Legal Issues in Engineering Management	S-6	3	0	0	3	7.5		
									END5564	Energy Management	S-6	3	0	0	3	7.5		
	Total Credits							12	30	Total Credits							12	30

STAGE THESIS	III. TERM / FALL								IV. TERM / SPRING									
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS		
	END5590	Eng. Technology Management and Entrepreneurship Project	C	3	0	0	3	7.5										
	END5503	Decision Analysis Under Risk and Uncertainty	S-1	3	0	0	3	7.5										
	END5505	Data Analytics	S-1	3	0	0	3	7.5										
	END5522	Statistical Quality Control	S-3	3	0	0	3	7.5										
	END5533	Human Resources Management	S-4	3	0	0	3	7.5										
	END5543	Marketing Technology Products	S-5	3	0	0	3	7.5										
	END5553	Production Planning and Management	S-6	3	0	0	3	7.5										
	END5557	Research and Development Management	S-6	3	0	0	3	7.5										
	Total Credits							12	30	Total Credits								

TOTAL CREDITS: 36 - TOTAL ECTS: 90

Note: The students are expected to register a total of 12 credits (30 ECTS) courses every academic term in order to complete the program in three terms.
 Recommended electives from each group can be freely selected at each term.
 Student may register to END5590 Engineering Technology Management and Entrepreneurship Project earliest in the third term.
 (*) Industrial engineers must not register.



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI DERS PLANLARI (SEÇMELİ DERSLER)

ANABİLİM DALI		ENDÜSTRİ MÜHENDİSLİĞİ														
BİLİM DALI / PROGRAMI		ENDÜSTRİ MÜHENDİSLİĞİ / Doktora Programı														
DERS AŞAMASI	I. YARIYIL / GÜZ								II. YARIYIL / BAHAR							
	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS
	END6105	DİNAMİK PROGRAMLAMA	S	3	0	0	3	7.5	END6104	DOĞRUSAL OLMAYAN PROGRAMLAMA	S	3	0	0	3	7.5
	END6113	TEDARİK ZİNCİRİ YÖNETİMİ	S	3	0	0	3	7.5	END6108	KARMAŞIKLIK ANALİZİ	S	3	0	0	3	7.5
	END6115	BÜTÜNLEŞİK İMALAT SİSTEMLERİ YÖNETİMİ	S	3	0	0	3	7.5	END6114	BÜTÜNLEŞİK İMALAT SİSTEMLERİ TASARIMI	S	3	0	0	3	7.5
	END6117	ÜRÜN TASARIMININ YÖNETİMİ	S	3	0	0	3	7.5	END6116	KALİTE KONTROLDE İLERİ KONULAR	S	3	0	0	3	7.5
	END6121	SİNİRSEL AĞLAR	S	3	0	0	3	7.5	END6122	YAPAY ZEKA	S	3	0	0	3	7.5
	END6131	FİNANSMAN MÜHENDİSLİĞİ	S	3	0	0	3	7.5	END6142	ERGONOMİDE FİZYOLOJİ VE PSİKOLOJİ	S	3	0	0	3	7.5
	END6141	İNSAN-MAKİNE SİSTEMLERİ	S	3	0	0	3	7.5	END6144	ÜRÜN TASARIMINDA ERGONOMİ	S	3	0	0	3	7.5
	END6107	ÇOK AMAÇLI OPTİMİZASYON	S	3	0	0	3	7.5								

- Not:** Öğrenci, I ve II. yarıyılarda zorunlu/seçmeli derslerden her yarıyıl toplam 12 kredilik (30 AKTS) ders seçecektir. Tüm derslerin önkoşulu Yüksek Lisans Programındaki Z ve S grubundaki dersler veya eşdeğerleridir. Derslerin önkoşullarının sağlanması konusunda öğrencinin danışmanı ve dersin öğretim üyesi görüşü alınır.
- (*) Öğrenci isterse, danışmanının onayı ile her yarıyıl için en fazla 1 (bir) seçmeli dersini aynı AKTS değerinde olmak şartıyla alan dışından da alabilir. Doktora programı öğrencisi yüksek lisans programlarından ders alamaz.
- (**) III. ve sonraki yarıyılarda belirtilen dersleri alabilmek için yeterli sınavına girip başarılı olmak gerekir.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN

DEPARTMENT OF INDUSTRIAL ENGINEERING
DEPARTMENT / PROGRAM INDUSTRIAL ENGINEERING / Doctoral Program

COURSE STAGE	I. TERM / FALL								II. TERM / SPRING							
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS
	END6101	LINEAR PROGRAMMING	C	3	0	0	3	7.5	END6102	INTEGER PROGRAMMING	C	3	0	0	3	7.5
	END	ELECTIVE COURSE	E	3	0	0	3	7.5	END6112	ADVANCED SIMULATION TECHNIQUES	C	3	0	0	3	7.5
	END	ELECTIVE COURSE	E	3	0	0	3	7.5	END	ELECTIVE COURSE	E	3	0	0	3	7.5
		ELECTIVE COURSE *	E	3	0	0	3	7.5		ELECTIVE COURSE *	E	3	0	0	3	7.5
	Total Credits						12	30	Total Credits						12	30
	III. TERM / FALL								IV. TERM / SPRING							
	FEN6000	RESEARCH TECHNIQUES AND PUBLICATION ETHICS	C	2	0	0	2	2	END6182	ADVANCED TOPICS IN PHD THESIS I	C	3	0	0	0	5
	END6171	SEMINAR	C	0	0	0	0	5	END6192	PHD THESIS I	C	0	0	0	0	25
	YET6177	PHD PROFICIENCY EXAMINATION **	C	0	0	0	0	23								
	Total Credits						2	30	Total Credits						0	30
	V. TERM / FALL								VI. TERM / SPRING							
	END6183	ADVANCED TOPICS IN PHD THESIS II	C	4	0	0	0	5	END6184	ADVANCED TOPICS IN PHD THESIS III	C	4	0	0	0	5
	END6193	PHD THESIS II	C	0	0	0	0	25	END6194	PHD THESIS III	C	0	0	0	0	25
	Total Credits						0	30	Total Credits						0	30
	VII. TERM / FALL								VIII. TERM / SPRING							
	END6185	ADVANCED TOPICS IN PHD THESIS IV	C	4	0	0	0	5	END6186	ADVANCED TOPICS IN PHD THESIS V	C	4	0	0	0	5
	END6195	PHD THESIS IV	C	0	0	0	0	25	END6196	PHD THESIS V	C	0	0	0	0	25
	Total Credits						0	30	Total Credits						0	30
TOTAL CREDITS: 26 - TOTAL ECTS: 240																

Note: The student is expected to take a total of 12 credits (30 ECTS) compulsory and elective courses per term, in terms I and II. The prerequisites of all courses are the courses in C and E groups in the Master's Program or their equivalents. The consents of the student's supervisor and the course instructor are taken for satisfying the prerequisites of the courses.

(*) The student has the option of choosing at most one elective course from another department per term with the approval of the supervisor and Head of Department. Doctoral student must not take courses from Master programs.

(**) Success in Ph.D. proficiency exam is a prerequisite for registering the courses specified in the 3rd term and the following terms.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN (ELECTIVE COURSES)

DEPARTMENT OF		INDUSTRIAL ENGINEERING														
DEPARTMENT / PROGRAM		INDUSTRIAL ENGINEERING / Doctoral Program														
COURSE STAGE	I. TERM / FALL								II. TERM / SPRING							
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS
	END6105	DYNAMIC PROGRAMMING	E	3	0	0	3	7.5	END6104	NONLINEAR PROGRAMMING	E	3	0	0	3	7.5
	END6113	SUPPLY CHAIN MANAGEMENT	E	3	0	0	3	7.5	END6108	COMPLEXITY ANALYSIS	E	3	0	0	3	7.5
	END6115	MANAGEMENT OF INTEGRATED MANUFACTURING SYSTEMS	E	3	0	0	3	7.5	END6114	DESIGN OF INTEGRATED MANUFACTURING SYSTEMS	E	3	0	0	3	7.5
	END6117	MANAGEMENT OF PRODUCT DESIGN	E	3	0	0	3	7.5	END6116	ADVANCED TOPICS IN QUALITY CONTROL	E	3	0	0	3	7.5
	END6121	NEURAL NETWORKS	E	3	0	0	3	7.5	END6122	ARTIFICIAL INTELLIGENCE	E	3	0	0	3	7.5
	END6131	FINANCIAL ENGINEERING	E	3	0	0	3	7.5	END6142	PHYSIOLOGY AND PSYCHOLOGY IN ERGONOMICS	E	3	0	0	3	7.5
	END6141	HUMAN-MACHINE SYSTEMS	E	3	0	0	3	7.5	END6144	ERGONOMICS IN PRODUCT DESIGN	E	3	0	0	3	7.5
	END6107	MULTI-OBJECTIVE OPTIMIZATION	E	3	0	0	3	7.5								

Note: The student is expected to take a total of 12 credits (30 ECTS) compulsory and elective courses per term, in terms I and II. The prerequisites of all courses are the courses in C and E groups in the Master's Program or their equivalents. The consents of the student's supervisor and the course instructor are taken for satisfying the prerequisites of the courses.

(*) The student has the option of choosing at most one elective course from another department per term with the approval of the supervisor and Head of Department. Doctoral student must not take courses from Master programs.

(**) Success in Ph.D. proficiency exam is a prerequisite for registering the courses specified in the 3rd term and the following terms.



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI DERS PLANLARI

ANABİLİM DALI		ENDÜSTRİ MÜHENDİSLİĞİ																
BİLİM DALI / PROGRAMI		ENDÜSTRİ MÜHENDİSLİĞİ / Bütünleşik Doktora Programı																
DERS AŞAMASI	I. YARIYIL / GÜZ							II. YARIYIL / BAHAR										
	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS		
	END5101	MATEMATİKSEL PROGRAMLAMA	Z	3	0	0	3	7,5	END5	SEÇMELİ DERS	S	3	0	0	3	7,5		
	END5	SEÇMELİ DERS	S	3	0	0	3	7,5	END5	SEÇMELİ DERS	S	3	0	0	3	7,5		
	END5	SEÇMELİ DERS	S	3	0	0	3	7,5	END5	SEÇMELİ DERS	S	3	0	0	3	7,5		
		SEÇMELİ DERS *	S	3	0	0	3	7,5		SEÇMELİ DERS *	S	3	0	0	3	7,5		
	Toplam Kredi							12	30	Toplam Kredi							12	30
	III. YARIYIL / GÜZ							IV. YARIYIL / GÜZ										
	END6101	DOĞRUSAL PROGRAMLAMA	Z	3	0	0	3	7,5	END6102	TAMSAYILI PROGRAMLAMA	Z	3	0	0	3	7,5		
	END6	SEÇMELİ DERS	S					7,5	END6112	İLERİ SİMÜLASYON TEKNİKLERİ	Z	3	0	0	3	7,5		
END6	SEÇMELİ DERS	S					7,5	END6	SEÇMELİ DERS	S					7,5			
	SEÇMELİ DERS *	S					7,5		SEÇMELİ DERS *	S					7,5			
Toplam Kredi							12	30	Toplam Kredi							12	30	
TEZ AŞAMASI	V. YARIYIL / GÜZ							VI. YARIYIL / BAHAR										
	FEN6000	ARAŞTIRMA TEKNİKLERİ VE YAYIN ETİĞİ	Z	2	0	0	2	2	END6182	DOKTORA UZMANLIK ALAN DERSI I	Z	4	0	0	0	5		
	END6171	SEMİNER	Z	0	0	0	0	5	END6192	TEZ DANIŞMANLIĞI I	Z	0	0	0	0	25		
	YET6177	DOKTORA YETERLİLİK SINAVI **	Z	0	0	0	0	23										
	Toplam Kredi							2	30	Toplam Kredi							0	30
	VII. YARIYIL / GÜZ							VIII. YARIYIL / BAHAR										
	END6183	DOKTORA UZMANLIK ALAN DERSI II	Z	4	0	0	0	5	END6184	DOKTORA UZMANLIK ALAN DERSI III	Z	4	0	0	0	5		
	END6193	TEZ DANIŞMANLIĞI II	Z	0	0	0	0	25	END6194	TEZ DANIŞMANLIĞI III	Z	0	0	0	0	25		
	Toplam Kredi							0	30	Toplam Kredi							0	30
	IX. YARIYIL / GÜZ							X. YARIYIL / BAHAR										
END6185	DOKTORA UZMANLIK ALAN DERSI IV	Z	4	0	0	0	5	END6186	DOKTORA UZMANLIK ALAN DERSI V	Z	4	0	0	0	5			
END6195	TEZ DANIŞMANLIĞI IV	Z	0	0	0	0	25	END6196	TEZ DANIŞMANLIĞI V	Z	0	0	0	0	25			
Toplam Kredi							0	30	Toplam Kredi							0	30	
TOPLAM KREDİ: 50 - TOPLAM AKTS: 300																		

Not: Öğrenci, I-IV. yarıyılarda zorunlu/seçmeli derslerden her yarıyıl toplam 12 kredilik (30 AKTS) ders seçecektir.

III ve IV. Yarıyıl derslerinin önkoşulu I ve II. yarıyıldaki Z ve S grubundaki dersler veya eşdeğerleridir.

III ve IV. Yarıyıldaki derslerin önkoşullarının sağlanması konusunda öğrencinin danışmanı ve dersin öğretim üyesi görüşü alınır.

(*) I ve II. Yarıyıldaki S grubuna sayılmak üzere öğrencinin danışmanı ve Ana Bilim Dalı Başkanlığının onayı ile farklı yüksek lisans programlarından en fazla 2 ders alınabilir.

(**) Yeterlik Sınavından başarılı olmak ön koşuldur; V. ve sonraki yarıyılarda belirtilen dersleri alabilmek için yeterlik sınavına girip başarılı olmak gerekir.



ULUDAĞ ÜNİVERSİTESİ
FEN BİLİMLERİ ENSTİTÜSÜ
2020-2021 EĞİTİM ÖĞRETİM YILI DERS PLANLARI (SEÇMELİ DERSLER)

ANABİLİM DALI

ENDÜSTRİ MÜHENDİSLİĞİ

BİLİM DALI / PROGRAMI

ENDÜSTRİ MÜHENDİSLİĞİ / Bütünleşik Doktora Programı

DERS AŞAMASI	I. YARIYIL / GÜZ								II. YARIYIL / BAHAR							
	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS	Kodu	Dersin Adı	Türü	T	U	L	Kredi	AKTS
	END5113	BİLGİSAYAR DESTEKLİ İMALAT	S	3	0	0	3	7.5	END5110	ÜRETİM SİSTEMLERİ	S	3	0	0	3	7.5
END5115	SİMÜLASYON ANALİZİ	S	3	0	0	3	7.5	END5112	İŞ SIRALAMA VE ÇİZELGELEME	S	3	0	0	3	7.5	
END5121	ALGORİTMA TASARIMI VE ANALİZİ	S	3	0	0	3	7.5	END5114	ENVANTER SİSTEMLERİNİN ANALİZİ	S	3	0	0	3	7.5	
END5123	SEZGİSEL ALGORİTMALAR	S	3	0	0	3	7.5	END5116	TESİS YERİ SEÇİMİ İŞ YERİ DÜZENLEME	S	3	0	0	3	7.5	
END5131	TOPLAM KALİTE YÖNETİMİ	S	3	0	0	3	7.5	END5132	MÜHENDİSLİK EKONOMİSİ ANALİZİ	S	3	0	0	3	7.5	
END5151	İSTATİSTİKSEL VERİ ANALİZİ	S	3	0	0	3	7.5	END5134	TEKNOLOJİ YÖNETİMİ	S	3	0	0	3	7.5	
END5153	DENEYSEL TASARIM	S	3	0	0	3	7.5	END5136	STRATEJİK KARAR DESTEK SİSTEMLERİ	S	3	0	0	3	7.5	
END5155	STOKASTİK SÜREÇLER	S	3	0	0	3	7.5	END5156	GÜVENİLİRLİK MÜHENDİSLİĞİ	S	3	0	0	3	7.5	
END5117	İMALAT SÜREÇLERİNİN KONTROLÜ	S	3	0	0	3	7.5	END5140	GÜRÜLTÜ ETKİ DEĞERLENDİRMESİ	S	3	0	0	3	7.5	
END5119	SÜRDÜRÜLEBİLİR MÜHENDİSLİK	S	3	0	0	3	7.5	END5138	ÇOK KRİTERLİ KARAR VERME	S	3	0	0	3	7.5	
								END5142	VERİ MADENCİLİĞİ	S	3	0	0	3	7.5	
								END5122	GÖMÜLÜ OPTİMİZASYON TEKNİKLERİ	S	3	0	0	3	7.5	
								END5124	KISIT PROGRAMLAMA	S	3	0	0	3	7.5	
III. YARIYIL / GÜZ								IV. YARIYIL / BAHAR								
END6105	DİNAMİK PROGRAMLAMA	S	3	0	0	3	7.5	END6104	DOĞRUSAL OLMAYAN PROGRAMLAMA	S	3	0	0	3	7.5	
END6113	TEDARİK ZİNCİRİ YÖNETİMİ	S	3	0	0	3	7.5	END6108	KARMAŞIKLIK ANALİZİ	S	3	0	0	3	7.5	
END6115	BÜTÜNLEŞİK İMALAT SİSTEMLERİ YÖNETİMİ	S	3	0	0	3	7.5	END6114	BÜTÜNLEŞİK İMALAT SİSTEMLERİ TASARIMI	S	3	0	0	3	7.5	
END6117	ÜRÜN TASARIMININ YÖNETİMİ	S	3	0	0	3	7.5	END6116	KALİTE KONTROLDE İLERİ KONULAR	S	3	0	0	3	7.5	
END6121	SİNİRSEL AĞLAR	S	3	0	0	3	7.5	END6122	YAPAY ZEKA	S	3	0	0	3	7.5	
END6131	FİNANSMAN MÜHENDİSLİĞİ	S	3	0	0	3	7.5	END6142	ERGONOMİDE FİZYOLOJİ VE PSİKOLOJİ	S	3	0	0	3	7.5	
END6141	İNSAN-MAKİNE SİSTEMLERİ	S	3	0	0	3	7.5	END6144	ÜRÜN TASARIMINDA ERGONOMİ	S	3	0	0	3	7.5	
END6107	ÇOK AMAÇLI OPTİMİZASYON	S	3	0	0	3	7.5									

Not: Öğrenci, I-IV. yarıyıllarda zorunlu/seçmeli derslerden her yarıyıl toplam 12 kredilik (30 AKTS) ders seçecektir.

III ve IV. Yarıyıl derslerinin önkoşulu I ve II. yarıyıldaki Z ve S grubundaki dersler veya eşdeğerleridir.

III ve IV. Yarıyıldaki derslerin önkoşullarının sağlanması konusunda öğrencinin danışmanı ve dersin öğretim üyesi görüşü alınır.

(*) I ve II. Yarıyıldaki S grubuna sayılmak üzere öğrencinin danışmanı ve Ana Bilim Dalı Başkanlığının onayı ile farklı yüksek lisans programlarından en fazla 2 ders alınabilir.

(**) Yeterlik Sınavından başarılı olmak ön koşuldur; V. ve sonraki yarıyıllarda belirtilen dersleri alabilmek için yeterlik sınavına girip başarılı olmak gerekir.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN

DEPARTMENT OF		INDUSTRIAL ENGINEERING																
DEPARTMENT / PROGRAM		INDUSTRIAL ENGINEERING / Integrated Doctoral Program																
COURSE STAGE	I. TERM / FALL							II. TERM / SPRING										
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS		
	END5101	MATHEMATICAL PROGRAMMING	C	3	0	0	3	7.5	END5	ELECTIVE COURSE	E	3	0	0	3	7.5		
	END5	ELECTIVE COURSE	E	3	0	0	3	7.5	END5	ELECTIVE COURSE	E	3	0	0	3	7.5		
	END5	ELECTIVE COURSE	E	3	0	0	3	7.5	END5	ELECTIVE COURSE	E	3	0	0	3	7.5		
		ELECTIVE COURSE *	E	3	0	0	3	7.5		ELECTIVE COURSE *	E	3	0	0	3	7.5		
	Total Credits							12	30	Total Credits							12	30
	III. TERM / FALL							IV. TERM / SPRING										
	END6101	LINEAR PROGRAMMING	C	3	0	0	3	7.5	END6102	INTEGER PROGRAMMING	C	3	0	0	3	7.5		
	END6	ELECTIVE COURSE	E	3	0	0	3	7.5	END6112	ADVANCED SIMULATION TECHNIQUES	C	3	0	0	3	7.5		
END6	ELECTIVE COURSE	E	3	0	0	3	7.5	END6	ELECTIVE COURSE	E	3	0	0	3	7.5			
	ELECTIVE COURSE *	E	3	0	0	3	7.5		ELECTIVE COURSE *	E	3	0	0	3	7.5			
Total Credits							12	30	Total Credits							12	30	
THESIS STAGE	V. TERM / FALL							VI. TERM / SPRING										
	FEN6000	RESEARCH TECHNIQUES AND PUBLICATION ETHICS	C	2	0	0	2	2	END6182	ADVANCED TOPICS IN PHD THESIS I	C	4	0	0	0	5		
	END6171	SEMINAR	C	0	0	0	0	5	END6192	PHD THESIS I	C	0	0	0	0	25		
	YET6177	PHD PROFICIENCY EXAMINATION **	C	0	0	0	0	23										
	Total Credits							2	30	Total Credits							0	30
	VII. TERM / FALL							VIII. TERM / SPRING										
	END6183	ADVANCED TOPICS IN PHD THESIS II	C	4	0	0	0	5	END6184	ADVANCED TOPICS IN PHD THESIS III	C	4	0	0	0	5		
	END6193	PHD THESIS II	C	0	0	0	0	25	END6194	PHD THESIS III	C	0	0	0	0	25		
	Total Credits							0	30	Total Credits							0	30
	IX. TERM / FALL							X. TERM / SPRING										
END6185	ADVANCED TOPICS IN PHD THESIS IV	C	4	0	0	0	5	END6186	ADVANCED TOPICS IN PHD THESIS V	C	4	0	0	0	5			
END6195	PHD THESIS IV	C	0	0	0	0	25	END6196	PHD THESIS V	C	0	0	0	0	25			
Total Credits							0	30	Total Credits							0	30	
TOPLAM KREDİ: 50 - TOPLAM AKTS: 300																		

Note: The student is expected to take a total of 12 credits (30 ECTS) compulsory and elective courses per term, in terms I-IV.

The prerequisites of the courses in terms III and IV are the C and E group courses in terms I and II or their equivalents.

The consents of the student's supervisor and the course instructor are taken for satisfying the prerequisites of the courses in terms III and IV.

(*) The student has the option of choosing at most two elective courses from other Master programs to be counted as E group courses in terms I and II with the approval of the supervisor and Head of Department.

(**) Success in Ph.D. proficiency exam is a prerequisite for registering the courses specified in the 5th term and the following terms.



ULUDAĞ UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
2020-2021 ACADEMIC YEAR COURSE PLAN (ELECTIVE COURSES)

DEPARTMENT OF		INDUSTRIAL ENGINEERING															
DEPARTMENT / PROGRAM		INDUSTRIAL ENGINEERING / Integrated Doctoral Program															
COURSE STAGE	I. TERM / FALL								II. TERM / SPRING								
	Code	Course Title	Type	T	U	L	Credit	ECTS	Code	Course Title	Type	T	U	L	Credit	ECTS	
		END5113	COMPUTER AND MANUFACTURING	E	3	0	0	3	7.5	END5110	PRODUCTION SYSTEMS	E	3	0	0	3	7.5
		END5115	SIMULATION ANALYSIS	E	3	0	0	3	7.5	END5112	JOB SEQUENCING AND SCHEDULING	E	3	0	0	3	7.5
		END5121	DESIGN AND ANALYSIS OF ALGORITHMS	E	3	0	0	3	7.5	END5114	ANALYSIS OF INVENTORY SYSTEMS	E	3	0	0	3	7.5
		END5123	HEURISTIC ALGORITHMS	E	3	0	0	3	7.5	END5116	FACILITY LOCATION AND LAYOUT	E	3	0	0	3	7.5
		END5131	TOTAL QUALITY MANAGEMENT	E	3	0	0	3	7.5	END5132	ENGINEERING ECONOMY	E	3	0	0	3	7.5
		END5151	STATISTICAL DATA ANALYSIS	E	3	0	0	3	7.5	END5134	TECHNOLOGY MANAGEMENT	E	3	0	0	3	7.5
		END5153	EXPERIMENTAL DESIGN	E	3	0	0	3	7.5	END5136	STRATEGIC DECISION SUPPORT SYSTEMS	E	3	0	0	3	7.5
		END5155	STOCHASTIC PROCESSES	E	3	0	0	3	7.5	END5156	RELIABILITY ENGINEERING	E	3	0	0	3	7.5
	END5117	MANUFACTURING PROCESSES CONTROL	E	3	0	0	3	7.5	END5140	NOISE IMPACT ENGINEERING	E	3	0	0	3	7.5	
	END5119	SUSTAINABLE ENGINEERING	E	3	0	0	3	7.5	END5138	MULTICRITERIA DECISION MAKING	E	3	0	0	3	7.5	
									END5142	DATA MINING	E	3	0	0	3	7.5	
									END5122	EMBEDDED OPTIMIZATION TECHNIQUES	E	3	0	0	3	7.5	
									END5124	CONSTRAINT PROGRAMMING	E	3	0	0	3	7.5	
	III. TERM / FALL								IV. TERM / SPRING								
	END6105	DYNAMIC PROGRAMMING	E	3	0	0	3	7.5	END6104	NONLINEAR PROGRAMMING	E	3	0	0	3	7.5	
	END6113	SUPPLY CHAIN MANAGEMENT	E	3	0	0	3	7.5	END6108	COMPLEXITY ANALYSIS	E	3	0	0	3	7.5	
	END6115	MANAGEMENT OF INTEGRATED MANUFACTURING SYSTEMS	E	3	0	0	3	7.5	END6114	DESIGN OF INTEGRATED MANUFACTURING SYSTEMS	E	3	0	0	3	7.5	
	END6117	MANAGEMENT OF PRODUCT DESIGN	E	3	0	0	3	7.5	END6116	ADVANCED TOPICS IN QUALITY CONTROL	E	3	0	0	3	7.5	
	END6121	NEURAL NETWORKS	E	3	0	0	3	7.5	END6122	ARTIFICIAL INTELLIGENCE	E	3	0	0	3	7.5	
	END6131	FINANCIAL ENGINEERING	E	3	0	0	3	7.5	END6142	PHYSIOLOGY AND PSYCHOLOGY IN ERGONOMICS	E	3	0	0	3	7.5	
	END6141	HUMAN-MACHINE SYSTEMS	E	3	0	0	3	7.5	END6144	ERGONOMICS IN PRODUCT DESIGN	E	3	0	0	3	7.5	
	END6107	MULTI-OBJECTIVE OPTIMIZATION	E	3	0	0	3	7.5									

Note: The student is expected to take a total of 12 credits (30 ECTS) compulsory and elective courses per term, in terms I-IV.

The prerequisites of the courses in terms III and IV are the C and E group courses in terms I and II or their equivalents.

The consents of the student's supervisor and the course instructor are taken for satisfying the prerequisites of the courses in terms III and IV.

(*) The student has the option of choosing at most two elective courses from other Master programs to be counted as E group courses in terms I and II with the approval of the supervisor and Head of Department.

(**) Success in Ph.D. proficiency exam is a prerequisite for registering the courses specified in the 5th term and the following terms.

