

DE	PARTMEN	TOF	Industrial Engineering														
DE	PARTMEN	T / PROGRAM	Industrial Engineering/ M.S.	Program	in l	Indu	ıstri	al Engi	neering								
			I. TERM / FALL			II. TERM / SPRING											
	Code		Course Title	Туре	Т	U	L	Credit	t ECTS	Code	Course Title	Туре	Т	U	L	Credit	ECTS
	END5101	Mathematical Pro	ogramming	Z	3	0	0	3	7.5	END5110	Production Systems	S1	3	0	0	3	7.5
	END5113	Computer and Ma	anufacturing	S 2	3	0	0	3	7.5	END5112	Job Sequencing and Scheduling	S 1	3	0	0	3	7.5
	END5115	Simulation Analy	vsis	S 1	3	0	0	3	7.5	END5114	Analysis of Inventory Systems	S 2	3	0	0	3	7.5
H	END5121	Design and Analy	ysis of Algorithms	S 1	3	0	0	3	7.5	END5116	Facility Location and Layout	S 2	3	0	0	3	7.5
STAGE	END5123	Heuristic Algorit	hms	S2	3	0	0	3	7.5	END5132	Engineering Economy	S 2	3	0	0	3	7.5
	END5131	Total Quality Ma	nagement	S2	3	0	0	3	7.5	END5134	Technology Management	S 2	3	0	0	3	7.5
COURSE	END5151	Statistical Data A	nalysis	S 1	3	0	0	3	7.5	END5136	Strategic Decision Support Systems	S 2	3	0	0	3	7.5
10	END5153	Experimental Des	sign	S2	3	0	0	3	7.5	END5156	Reliability Engineering	S 2	3	0	0	3	7.5
	END5155	Stochastic Proces	sses	S2	3	0	0	3	7.5	END5140	Noise Impact Engineering	S 2	3	0	0	3	7.5
	END5117	Manufacturing Pr	rocesses Control	S2	3	0	0	3	7.5	END5138	Multicriteria Decision Making	S 2	3	0	0	3	7.5
	END5119	Sustainable Engi	neering	S2	3	0	0	3	7.5	END5142	Data Mining	S2	3	0	0	3	7.5
										END5122	Embedded Optimization Techniques	S2	3	0	0	3	7.5
										END5124	Constraint Programming	S2	3	0	0	3	7.5
				Tot	al C	red	its	12	30			То	tal (Crea	lits	12	30
		1	III. TERM / FALL	:							IV. TERM / SPRING						
SIS	END5181	Advanced Topics	s in MA Thesis I	Z		0	0	0	5	END5182	Advanced Topics in MA Thesis II	Z	4	+	0	0	5
HE		Seminar		Z		0	0	0	5	END5192	MA Thesis II	Z	0	0	0	0	25
ΈT	END5191	MA Thesis I		Z	0	0	0	0	18								
STAGE THESIS	END5000	RESEARCH TEC PUBLICATION E ENGINEERING	HNIQUES and ETHICS in INDUSTRIAL	Z	2	0	0	2	2								
				Tot	al C	red	its	2	30			То	tal (Cree	lits	0	30
				T	DTA	L (CRI	EDITS	: 26	- TOTAL	ECTS: 120						

Not: Students are expected to register to a total of 12 credits (30 ECTS) selective and core courses every academic term.

Required course (Z) END5101 is offered in 1st and 2nd terms.

Min. 2 courses will be selected from S1 group in total.

Min. 1 course will be selected from S2 group in each of 1st and 2nd terms.

A total of 8 courses will be taken from Z, S1, S2 groups.



	ENGINEERING AND TECHNOLOGY MANAGEMENT MASTER OF SCIENCE DEGREE PROGRAM (WITHOUT THESIS)											
Kodu/Grubu	Dersin Adı	Т	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	Bussiness Management Elecvtives				6 (2 courses)	15						
S-6	Technology Management Electives				9 (3 courses)	22.5						
	Tota	l C	red	lits	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.

Recomended 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.



	PARTMEN														
DE	PARTMEN	T / PROGRAM Industrial Engineering/ M.S. I	Program	in E	Ingine	ering ar	d Techno	ology Manage	ement (Without Thesis)			. <u> </u>			
		I. TERM / FALL							II. TERM / SPRING						
	Code	Course Title	Туре	Т	UL	Credi	t ECTS	Code	Course Title	Туре	Т	U	LC	'redit	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			0 0	3	7.5	END5513	Engineering Project Management	S-2	3	0	0	3	7.5
E	END5541	Accounting and Finance For Engineers	+		0 0		7.5	END5524	Lean Production and Service Management	S-3	3	++	0	3	7.5
AG	END5551	Strategic Technology Management	ļ		0 0	3	7.5	END5532	Human Factors Engineering	S-4	3	0	0	3	7.5
LS	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
SE								END5544	Entrepreneurship	S-5	3	0	0	3	7.5
COURSE STAGE								END5542	Financial Research and Development	S-5	3	0	0	3	7.5
Ŭ								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
			Tota	redits	12	30			To	tal C	Cred	its	12	30	
		III. TERM / FALL							IV. TERM / SPRING						
	END5590	Eng. Technology Management and Entrepreneurship Project	Z	3	0 0	3	7.5								
IS	END5503	Decision Analysis Under Risk and Uncertainty	S-1	3	0 0	3	7.5								
THESIS	END5505	Data Analytics	S-1	3	0 0	3	7.5								
ΗE	END5522	Statistical Quality Control	S-3	3	0 0	3	7.5								
STAGE	END5533	Human Resources Management	S-4	3	0 0	3	7.5								
TS	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								
			Tota	l Ci	redits	12	30			To	tal C	Ired	its		
			TC) TA	L C	REDITS	5: 36	- TOTAL	ECTS: 90						

Not: 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.

Recomended 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



DEPARTMENT OF	Industrial Engineering
DEPARTMENT / PROGRAM	Industrial Engineering / Doctoral Program

		I. TERM / FALL							II. TERM / SPRING											
	Code	Course Title	Туре	T	JI	Credit	ECTS	Code	Course Title	Туре	Т	U	L	Credit	ECTS					
	END6101	Linear Programming	Z	3) () 3	7.5	END6102	Integer Programming	Z	3	0	0	3	7.5					
5	END6105	Dynamic Programming	S	3) () 3	7.5	END6112	Advanced Simulation Techniques	Z	3	0	0	3	7.5					
AGI	END6113	Supply Chain Management	S	3) () 3	7.5	END6104	Nonlinear Programming	S	3	0	0	3	7.5					
COURSE STAGE	END6115	Management of Integrated Manufacturing Systems	S	3) () 3	7.5	END6108	Complexity Analysis	S	3	0	0	3	7.5					
UR	END6117	Management of Product Design	S	3) () 3	7.5	END6114	Design of Integrated Manufacturing Systems	S	3	0	0	3	7.5					
CO	END6121	Neural Networks	S	3) () 3	7.5	END6116	Advanced Topics in Quality Control	S	3	0	0	3	7.5					
	END6131	Financial Engineering	S	3) () 3	7.5	END6122	Artificial Intelligence	S	3	0	0	3	7.5					
	END6141	Human-Machine Systems	S	3) () 3	7.5	END6142	Physiology and Psychology in Ergonomics	S	3	0	0	3	7.5					
	END6107	Multi-Objective Optimization	S	3) () 3	7.5	END6144	Ergonomics in Product Design	S	3	0	0	3	7,5					
				al Cr	edit	s 12	30			Tot	al C	red	its	12	30					
		III. TERM / FALL					1		IV. TERM / SPRING				—		-					
	FEN6000	RESEARCH TECHNIQUES and PUBLICATION ETHICS	Z	ļļ) () 2	2	END6182	Advanced Topics in PHD Thesis I	Z		0	ļļ	0	5					
	END6171	Seminar	Z	++) (5	END6192	PHD Thesis I	Z	0	0	0	0	25					
	YET6177	PHD Proficiency Examination (*)	Z	0) (0 0	23													
THESIS			Tot	al Cr	edit	s 2	30			 Tot	al C	red	its	0	30					
THE		V. TERM / FALL					1		VI. TERM / SPRING						0 30					
_	END6183	Advanced Topics in PHD Thesis II	Z	4) () 0	5	END6184	Advanced Topics in PHD Thesis III	Z	4	0	0	0	5					
STAGE	END6193	PHD Thesis II	Z	0) (0 0	25	END6194	PHD Thesis III	Z	0	0	0	0	25					
\mathbf{S}													<u> </u>							
				al Cr	edit	s 0	30			Tot	al C	red	its	0	30					
	END (105	VII. TERM / FALI							VIII. TERM / SPRING			0								
	END6185 END6195	Advanced Topics in PHD Thesis IV PHD Thesis IV	Z Z	4			5 25		Advanced Topics in PHD Thesis V PHD Thesis V	Z Z		0	++	0	5 25					
	END0195		i	al Cr			<u> </u>	ENDOI90		i	al C	-		0	25 30					
-			101			L CREDI		<u> </u>	CAL ECTS: 240	100	ai U	100	413	U						
Not	The student is	expected to take a total of 12 credits (30 ECTS) core/sel-	ective cour																	

Not: The student is expected to take a total of 12 credits (30 ECTS) core/selective courses every academic term for the I. and II. terms. * Success in Ph.D. qualifying exam is a prerequisite to register courses following the term III.



DEPARTMENT OF	Industrial Engineering
DEPARTMENT / PROGRAM	Industrial Engineering / Integrated Doctoral Program

Course TitleMathematical ProgrammingComputer and ManufacturingSimulation AnalysisDesign and Analysis of AlgorithmsHeuristic AlgorithmsTotal Quality ManagementStatistical Data AnalysisExperimental DesignStochastic Processes	Type Z S S S S S S S S S S S S S S S S S S S	3 3 3 3 3 3 3 3 3	0 0 0 0 0	L 0 0 0 0 0 0	Credit 3 3 3 3 3 3 3	ECTS 7.5 7.5 7.5 7.5 7.5	Code END5110 END5112 END5114 END5116	Course Title Production Systems Job Sequencing and Scheduling Analysis of Inventory Systems	Type Z Z S	3 3	U 0 0	0	Credit 3	ECTS 7.5						
Computer and Manufacturing Simulation Analysis Design and Analysis of Algorithms Heuristic Algorithms Total Quality Management Statistical Data Analysis Experimental Design	S S S S S S	3 3 3 3 3 3 3	0 0 0 0 0	0 0 0 0	3 3 3	7.5 7.5 7.5	END5112 END5114	Job Sequencing and Scheduling Analysis of Inventory Systems	Z	3				7.5						
Simulation AnalysisDesign and Analysis of AlgorithmsHeuristic AlgorithmsTotal Quality ManagementStatistical Data AnalysisExperimental Design	S S S S S S	3 3 3 3 3 3	0 0 0 0	0 0 0	3 3	7.5 7.5	END5114	Analysis of Inventory Systems			0	_	_							
Design and Analysis of AlgorithmsHeuristic AlgorithmsTotal Quality ManagementStatistical Data AnalysisExperimental Design	S S S S	3 3 3 3	0 0 0	0 0	3	7.5			S		0	0	3	7.5						
Heuristic AlgorithmsTotal Quality ManagementStatistical Data AnalysisExperimental Design	S S S	3 3 3	0 0	0			END5116			3	0	0	3	7.5						
Total Quality ManagementStatistical Data AnalysisExperimental Design	S S	3 3	0	-	3	7 -		Facility Location and Layout	S	3	0	0	3	7.5						
Statistical Data Analysis Experimental Design	S	3	-	Δ		7.5	END5132	Engineering Economy	S	3	0	0	3	7.5						
Experimental Design			1	0	3	7.5	END5134	Technology Management	S	3	0	0	3	7.5						
	S		0	0	3	7.5	END5136	Strategic Decision Support Systems	S	3	0	0	3	7.5						
Stochastic Processes		3	0	0	3	7.5	END5156	Reliability Engineering	S	3	0	0	3	7.5						
	S	3	0	0	3	7.5	END5140	Noise Impact Engineering	S	3	0	0	3	7.5						
Manufacturing Processes Control	S	3	0	0	3	7.5	END5138	Multicriteria Decision Making	S	3	0	0	3	7.5						
Sustainable Engineering	S	3	0	0	3	7.5	END5142	Data Mining	S	3	0	0	3	7.5						
							END5122	Embedded Optimization Techniques	S	3	0	0	3	7.5						
							END5124	Constraint Programming	S	3	0	0	3	7.5						
	Total Credits 12 30 Total Credits 12 III. TERM / FALL IV. TERM / SPRINC IV. TERM / SPRINC IV. TERM / SPRINC IV. TERM / SPRINC											12	30							
III. TERM / FAL	-				~	-	~ .	IV. TERM / SPRING				1-1	~	edit ECTS						
Course Title	Туре		-		Credit	ECTS	Code	Course Title	Туре			+ +		-						
Linear Programming	Z	3	0		3	7.5	END6102	Integer Programming	Z		0		3	7.5						
Dynamic Programming	S	3	0	0	3	7.5	END6112	Advanced Simulation Techniques	Z	3	0	0	3	7.5						
Supply Chain Management	S	3	0	0	3	7.5	END6104	Nonlinear Programming	S	3	0	0	3	7.5						
	S	3	0	0	3	7.5	END6108	Complexity Analysis	S	3	0	0	3	7.5						
Management of Integrated Manufacturing Systems	1		0	0	3	7.5	END6114	Design of Integrated Manufacturing Systems	S	3	0	0	3	7.5						
	S	3			3	7.5	END6116	Advanced Topics in Quality Control	S	3	0	0	3	7.5						
Systems	S S	3 3	0	0	5		ENDC100	Artificial Intelligence	S	3	0	0	3	7.5						
Systems Management of Product Design			0 0	0	3	7.5	END6122			3			3	7.5						
SystemsManagement of Product DesignNeural Networks	S	3	+			7.5 7.5	END6122 END6142	Physiology and Psychology in Ergonomics	S		0	0	3	7,5						
SystemsManagement of Product DesignNeural NetworksFinancial Engineering	S S	3 3 3	0 0	0 0	3			Physiology and Psychology in Ergonomics Ergonomics in Product Design	S S	3	÷	1 1		1						
SystemsManagement of Product DesignNeural NetworksFinancial EngineeringHuman-Machine Systems	S S S S	3 3 3	0 0 0	0 0 0	3	7.5	END6142		S	3 tal C			12	30						
]	Management of Product Design Neural Networks	Neural Networks S	Neural Networks S 3			Financial Engineering S 3 0 0 3	Financial Engineering $5 \cdot 5 \cdot 0 \cdot 0 \cdot 5 \cdot 7.5$				Human-Machine Systems S 3 0 0 3 7.5 END6142 Physiology and Psychology in Ergonomics S 3	Human-Machine Systems S 3 0 0 3 7.5 END6142 Physiology and Psychology in Ergonomics S 3 0	Human-Machine SystemsS30037.5END6142Physiology and Psychology in ErgonomicsS30	Human-Machine SystemsS30037.5END6142Physiology and Psychology in ErgonomicsS3003						

		V. TERM / FAL	L							VI. TERM / SPRI	NG							
	FEN6000	RESEARCH TECHNIQUES and PUBLICATION ETHICS	Z	2	0	0	2	2	END6182	Advanced Topics in PHD Thesis I	Z 3 0 0	0	5					
	END6171	Seminar	Z	0	0	0	0	5	END6192	PHD Thesis I	Z 0 0 0	0	25					
	YET6177	PHD Proficiency Examination (*)	Z	0	0	0	0	23										
AGE			To	otal (Cred	its	2	30			Total Credits	12	30					
ST/		VII. TERM / FAI	L							VIII. TERM / SPR	ING	Credits 12 30 0 0 0 5 0 0 0 25 Credits 12 30						
	END6183	Advanced Topics in PHD Thesis II	Z	4	0	0	0	5	END6184	Advanced Topics in PHD Thesis III	Z 4 0 0	0	5					
THESIS	END6193	PHD Thesis II	Z	0	0	0	0	25	END6194	PHD Thesis III	Z 0 0 0	0	25					
Ħ																		
	Total Credits 12										Total Credits	12	30					
		IX. TERM / FAI	L							X. TERM / SPRI	NG							
	END6185	Advanced Topics in PHD Thesis IV	Z	4	0	0	0	5	END6186	Advanced Topics in PHD Thesis V	Z 4 0 0	0	5					
	END6195	PHD Thesis IV	Z	0	0	0	0	25	END6196	PHD Thesis V	Z 0 0 0	0	25					
			To	tal (Credi	its	12	30			Total Credits	12	30					
					TOT	ΓAL	CRED	ITS: 50	- TO	TAL ECTS: 300								

Not: The student is expected to take a total of 12 credits (30 ECTS) core/selective courses every academic term for the I.-IV. terms. * Success in Ph.D. qualifying exam is a prerequisite to register courses following the term V.