

ESKİŞEHİR OSMANGAZİ UNIVERSITY

FACULTY OF ENGINEERING AND ARCHITECTURE

General Information

Eskişehir Osmangazi University (ESOGU) is a state university that dates back to the foundation of the Faculty of Medicine, the Faculty of Engineering and Architecture and the Faculty of Letters and Applied Sciences in 1970. These pioneering faculties became the founders of Anadolu University in 1972. These three faculties together with Eskişehir School of Health, Eskişehir Vocational School of Health Services, Institutes of Health Sciences, Metallurgy, and Applied Sciences, newly founded Faculty of Economic and Administrative Sciences and Institute of Social Sciences have formed Eskişehir Osmangazi University on 18 August 1993. Afterward other faculties and higher schools were founded.

ESOGU has now become one of the leading universities in central Anatolia with 11 faculties, four vocational schools and five graduate schools that are on seven campuses.

The main purpose of the faculty is to educate engineers and architects who are competent, practical thinkers and creative in their field and by this means are favored in the world of business.

In addition to numerous occupational laboratories, shared physics and chemistry laboratories are also available in the faculty.

Departments of Computer, Electrical and Electronics, Civil, Geological, Chemical, Mining, Mechanical, and Metallurgical, Materials Engineering and Department of Industrial Engineering serve in Meşelik Campus; Department of Architecture serves in Bademlik Campus. In addition to occupational classes, there are technical and social elective courses available in the departments of the faculty.

The graduates of the faculty may not only work freelance, but also work as engineers, architects, and researchers in their branches either in public or in private sector, or they may have an academic career.

Departments / Programs

Computer Engineering

Electrical and Electronics Engineering

Industrial Engineering

Civil Engineering

Geological Engineering

Chemical Engineering

Mining Engineering

Mechanical Engineering

Metallurgical and Materials Engineering

Architecture

DEPARTMENT OF INDUSTRIAL ENGINEERING

1. Introduction

IE Department was founded as a part of the Academy of Economical and Commercial Sciences in 1975. First students were admitted in 1977. In 1981, the Engineering & Architecture Faculty were joined at Anadolu University. There were two majors in the department named as Industrial Engineering and Operations Research until 2015. Now, there are four majors named as Human Machine Systems, Production and Service Systems, Quality Management and Quality Assurance System, and Operations Research.

Our aim is that the graduates will attain competence in professional practice of industrial engineering. In particular, to demonstrate a thorough understanding and working knowledge of mathematics, physical science, economics, and basic engineering principles to solve industrial engineering problems and to independently use appropriate techniques, skills, and tools to identify, formulate, analyze, and solve industrial engineering problems and to design a system, component, or process to meet an identified need.

Graduated students take part in different departments of manufacturing and service sectors (such as quality, planning, etc.) and they successfully apply professional knowledge gained from coursework and internships.

2. Degree

Upon successful completion of the program students are awarded a bachelor's degree in Industrial Engineering.

3. Level of Degree

Undergraduate

4. Admission Requirements

The general admission requirements both apply to Turkish and foreign students.

5. Recognition of Prior Learning

The recognition of previous learning, vertical, horizontal, and transitions in the University take place within the scope of the regulation which is 'Transition Between Associate Degree and Undergraduate Degree Programs, Regulation on Basis of Double Major, Minor and Credit Transfer Between Institutions', and determined by the Higher Education Institution.

Students from non-formal educational institutions in Turkey may claim course exemptions and they are exempted from courses approved. In recognition for some of the computer and foreign language courses, at the beginning of each academic semester exams of exemption are organized. Students who take the exam and pass are exempt from the relevant courses in the curriculum.

6. Qualification Requirements and Regulations

All courses in the student's program must be successfully completed. The student should not have any FF, DZ or YZ grades in order to successfully complete the courses. In this program, the student must complete a minimum of 240 ECTS credits and a minimum GPA of 2.00 out of 4.00.

All students studying at Eskişehir Osmangazi University Industrial Engineering Department are required to perform at least 40 workday internships in total, including workshops, management and business during their 4 years of education.

7. Program Profile

Based on the opinions from internal and external stakeholders and the four main components of the Industrial Engineering program, the following four Program Training Objectives were established:

- A. Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems
- B. Ability to identify, formulate and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose
- C. Ability to design a complex system, process, device or product under realistic constraints and conditions, to be able to achieve the desired result; ability to apply modern design methods for this purpose. Realistic constraints and conditions may include factors such as economic and environmental issues, sustainability, ethics, health, safety issues, and social and political issues, according to the nature of the design.
- D. Ability to work efficiently within interdisciplinary and multi disciplinary teams; ability to work individually and ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language.

8. Program Outcomes

- Sufficient knowledge of engineering topics related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.
- Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose, the ability to select and use convenient analytical and experimental methods.
- Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose the ability to apply modern design methods.
- Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effectively use information technologies.
- In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpret experimental results.

- Ability to work effectively in inter- or multi-disciplinary teams; proficiency of interdependence.
- Ability to communicate in written and oral forms in Turkish/English; proficiency in at least one foreign language.
- Awareness of life-long learning; ability to reach information; follow developments in science and technology and achieve continuous self-improvement.
- Understanding of professional and ethical issues and taking responsibility.
- Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.
- Knowledge of actual problems and effects of engineering applications on health, environment and security at global and social level; an awareness of juridical results of engineering solutions.

9. Employment Opportunities for Graduates

Industrial engineers may serve in all areas of economic life such as hospitals, industry producing goods or services, governmental or non-governmental enterprises. Examples of these systems include automobiles, refrigerators, textiles, biscuits, paper, machinery, aircraft health care institutions, educational institutions and local authorities and so on.

Industrial engineers work on how to operate such systems in the design and establishment phases as well as how to optimize existing resources (human, machine material). These studies, in particular, include finding the best solutions as circumstances allow, by taking into account the human dimension of the system.

10. Transition to Graduate Programs

Upon successful completion of bachelor's degree candidates who obtain a valid score from the ALES or equivalent exams and have sufficient foreign language knowledge can apply for graduate programs in their own field or related areas.

11. Exams, Assessment and Grading

Assessment and Grading methods for each course is defined in detail in Curriculum.

12. Graduation Requirements

Graduation requirements is described the "Qualification Requirements and Regulations" section.

13. Work Type (Full-Time, E-Learning)

Full-Time

14. Contact Information

Eskisehir Osmangazi University
Department of Industrial Engineering
Meselik Campus ESKISEHIR
Postal Zip Code:26480
Phone: +90-222-239 37 50 /3613

Prof. Dr. Aydın SİPAHİOĞLU, (Department Chair) (Ext.: 3613 /3608)
Assoc. Prof. Dr. Meryem ULUSKAN, (Dept. Co-Chair) (Ext. :3621)
Assist. Prof. Dr. N. Fırat ÖZKAN, (Ext. :3624)
Assist. Prof. Dr. Aykut ARAPOĞLU, (Erasmus Coordinator) (Ext. :3617)

15. Department/Program Resources and Laboratories

The IE Department employs 7 Professor, 5 Associate Professor, 4 Assistant Professor, including a total of 16 full time faculty members, 4 Research Assistants two of which have Ph. D. and 2 Administrative staff.

The IE department has 30 offices (allocated 24 offices for faculty), 12 classrooms and 50 m² meeting room. 7 classrooms have projection device.

The IE Department have 3 labs which are Production System Lab. (ÜSLAB-in Turkish), Management Technologies Lab. (YONTEK-in Turkish) and Work Study-Ergonomics Lab. (İŞLAB-in Turkish).

16. Academic Staff

Major: Man-Machine Systems

Prof. Dr. Emin KAHYA (Head of the Department)
Prof. Dr. Berna ULUTAŞ
Asst. Prof. Dr. N. Fırat ÖZKAN
Res. Asst. Büşra Nur ŞAHİN

Major: Quality Management and Quality Assurance Systems

Prof. Dr. Ezgi AKTAR DEMİRTAŞ (Head of the Department)
Assoc. Prof. Dr. Meryem ULUSKAN
Res. Asst. Dr. Hatice TEKŞEN

Major: Production and Service Systems

Prof. Dr. Muzaffer KAPANOĞLU (Head of the Department)
Prof. Dr. İnci SARIÇİÇEK
Assoc. Prof. Dr. Şerafettin ALPAY
Assoc. Prof. Dr. Servet HASGÜL
Assoc. Prof. Dr. Feriştah ÖZÇELİK
Asst. Prof. Dr. Yeliz BURUK ŞAHİN

Major: Operations Research

Prof. Dr. Mjgan SAĐIR (Head of the Department)

Prof. Dr. Aydın SİPAHİOĐLU (Department Chair)

Assoc. Dr. Prof. TuĐba SARAĐ

Asst. Prof. Dr. R. Aykut ARAPOĐLU

Asst. Prof. Dr. Mehmet ERTEM

Res. Asst. İslam ALTIN

Res. Asst. İlknur TKENMEZ

17. Courses and ECTS Credits

1st Year					
Fall Semester					
CODE	COURSE	ECTS	T+P	O/E	Lang.
151311195	Physics - I	3	3+0	O	Turkish
151311196	Physics - I Lab.	2	0+2	O	Turkish
151311212	Mathematics - I	5	4+0	O	Turkish
151311197	Chemistry	3	3+0	O	Turkish
151311198	Chemistry Lab.	2	0+2	O	Turkish
151311117	Engineering Drawings	4	2+2	O	Turkish
151311213	Information Technologies	3	2+0	O	Turkish
151311211	Introduction to Engineering	2	2+0	O	Turkish
151311181	Turkish Language - I	2	2+0	O	Turkish
151011209	English - I	3	3+0	O	English
151011185	Seminar - I (For Foreign Students)	0	2+0	O	Turkish
Total		29			
Spring Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151312196	Physics – II	3	3+0	O	Turkish
151312197	Physics - II Lab.	2	0+2	O	Turkish
151312205	Mathematics – II	5	4+0	O	Turkish
151312123	Introduction to Industrial Engineering	5	3+0	O	Turkish
151312204	Economics	5	3+0	O	Turkish
151312199	Basic Computer Sciences	4	2+2	O	Turkish
151312182	Turkish Language - II	2	2+0	O	Turkish
151012210	English – II	3	3+0	O	English
	Social Elective – I	3	2+0	E	Turkish
151312208	First Aid				
151312207	Photography				
151012186	Seminar-II (For Foreign Students)	0	2+0	O	Turkish
Total		31			
Year Total		60			

2nd Year					
Fall Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151313555	Discrete Systems	3	2+0	O	Turkish
151313556	Engineering Mechanics	5	3+0	O	Turkish
151313247	Engineering Materials	4	2+2	O	Turkish
151313561	Probability	5	3+0	O	Turkish
151313560	Technical English I	3	2+0	O	English
151011208	Principles of Atatürk – I	2	2+0	O	Turkish
151313557	Cost Analysis	5	3+0	O	Turkish
NTE I	Non-Technical Elective I	3	2+0	E	Turkish
151313558	General Business				
151313559	Report Writing Techniques				
	Total	30			
Spring Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151314553	Linear Systems	4	3+0	O	Turkish
151314244	Machine Principles	3	2+0	O	Turkish
151314554	Statistics - I	5	3+0	O	Turkish
151314242	System Analysis	5	3+0	O	Turkish
151314556	Technical English II	3	2+0	O	English
151012209	Principles of Atatürk - II	2	2+0	O	Turkish
151314555	Ergonomics	5	2+2	O	Turkish
MS	Engineering Elective	3	2+0	E	Turkish
151314246	Thermodynamics				
151314247	Electrotechnic				
	Social Elective II	3	2+0	E	Turkish
151314557	Industrial Psychology				
151314558	Occupational Physiology				
151314561	Effective Communication				
	Total	30			
	Year Total	60			

3rd Year					
Fall Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151315400	Operations Research I	5	3+0	O	Turkish
151315401	Statistics II	5	3+0	O	Turkish
151315410	Manufacturing Processes	5	3+0	O	Turkish
151315403	Work Study	5	3+0	O	Turkish
151315404	Engineering Economics	5	3+0	O	Turkish
151315405	Service Systems	3	2+0	O	Turkish
CE I	Complementary Elective I	3	2+0	E	Turkish
151315406	Information Systems				
151315407	Database Management Systems				
151315408	Heuristic Algorithms				
	Total	31			
Spring Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151316351	Operations Research II	5	3+0	O	Turkish
151316352	Quality Control	5	3+0	O	Turkish
151316353	Production Planning I	5	3+0	O	Turkish
151316355	Manufacturing Systems	5	3+0	O	Turkish
151316354	Simulation	6	3+0	O	Turkish
CE II	Complementary Elective II	3	2+0	E	Turkish
151316356	Material Handling Systems				
151316357	Efficiency Analysis				
151316358	Forecasting Methods				
	Total	29			
	Year Total	60			

4th Year					
Fall Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151317520	Facilities Planning	5	3+0	O	Turkish
151317521	Production Planning II	5	3+0	O	Turkish
151317523	Decision Support Systems	3	2+0	O	Turkish
151317522	Systems Design	5	3+0	O	Turkish
151317629	Occup. Health and Safety I	3	2+0	O	Turkish
TE-II	Technical Elective II	5	3+0	E	Turkish
151317524	Decision Analysis				
151317625	Stochastic Models				
151317620	Qualitative Decision Making				
TE - I	Technical Elective - I	5	3+0	E	Turkish
151317624	Design of Experiments				
151317627	Investment Analysis				
151317525	Logistics Management				
	Total	31	19		
Spring Semester					
CODE	COURSE	ECTS	C	O/E	Lang.
151318626	Occup. Health and Safety II	4	3+0	O	Turkish
151318627	Business Writing Techniques	3	2+0	O	Turkish
151318xxx	Engineering Research	6	1+4	O	Turkish
151318424	Project Management	4	3+0	O	Turkish
151318523	Creative Thinking and Entrepreneurship	3	2+0	O	Turkish
NTE II	Non-Technical Elective II	3	2+0	E	Turkish
151318525	Financial Management				
151318526	Marketing Management				
151318527	Human Resources Management				
151318624	Industrial Sociology				
151318602	Strategic Planning				
TE-III	Technical Elective III	3	2+0	E	Turkish
151318530	Advanced Production Systems				
151318528	Heuristic Methods				
151318529	Industrial Scheduling				
CE III	Complementary Elective III	3	2+0	E	Turkish
151318628	Lean Production				
151318629	Acceptance Sampling				
	Total	29			
	Year Total	60			
	Grand Total	240			



SEMESTER I
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311195	COURSE NAME	Physics I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	3	0	0	3	3	COMPULSORY (x) ELECTIVE ()	Türkçe

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	25
	2 nd Mid-Term	1	25
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
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COURSE DESCRIPTION	Measurement and units; vectors; Kinematics; Dynamics; Work and Energy; Linear Momentum and Collisions; Rotational Motion; Equilibrium; Oscillatory Motion
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COURSE OBJECTIVES	To teach the basic concepts and laws of physics and practices of daily life.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	In practice, varieties of physical systems to recognize and solve problems and at the same time improve their ability to practice in daily life. Using them, students will realize the role of physics in applied sciences such as health sciences and engineering.
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COURSE OUTCOMES	Students realize of the variety problems of physical systems and solve these problems. Understands the importance of measurement and the units. Physical systems apply in their personal daily life. Recognizes the role of physics in engineering and health sciences. The basic laws of physics and concepts.
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TEXTBOOK	Sears and Zemansky's UNIVERSITY PHYSICS WITH MODERN PHYSICS 12 TH Edition, PEARSON Addison Wesley (2008).
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OTHER REFERENCES	Halliday, D. , Resnick, R., & Walker, J. (2006) 6th ed. Fundamentals of Physics. New York: John Wiley & Sons, Inc. Serway, R.A. (1990). Physics for Scientists and Engineers. Philadelphia: Saunders College Publishing.
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS	
WEEK	TOPICS
1	Measurement and units
2	Vectors
3	Motion in One Dimension
4	Motion in Two Dimensions
5	Newton's Laws
6	Mid-Term Examination 1
7	Work and Power
8	Energy
9	Linear Momentum and Collisions
10	Rotational Motion
11	Mid-Term Examination 2
12	Applications of Rotational Motion
13	Equilibrium
14	Oscillatory Motion
15,16	Final Exam

COURSE SYLLABUS	
WEEK	TOPICS
1	Measurement and units
2	Vectors
3	Motion in One Dimension
4	Motion in Two Dimensions
5	Newton's Laws
6	Mid-Term Examination 1
7	Work and Power
8	Energy
9	Linear Momentum and Collisions
10	Rotational Motion
11	Mid-Term Examination 2
12	Applications of Rotational Motion
13	Equilibrium
14	Oscillatory Motion
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	x		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate ... engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311211	COURSE NAME	Calculus 1
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	4	0	0	4	5	COMPULSORY (√) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
√		()	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	1 st Mid-Term	1
2 nd Mid-Term		1	25
Quiz			
Homework			
Project			
Report			
Others (.....)			
FINAL EXAM		1	50

PREREQUIEITE(S)	
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COURSE DESCRIPTION	Functions, Limits and Continuity, Derivation and Applications of differentiation, Definite and indefinite integrals, Applications of integration, improper integrals, polar coordinates
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COURSE OBJECTIVES	The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of problems
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To apply theoretical and practical knowledge on solving and modeling of engineering problems by using sufficient knowledge of engineering subjects related with mathematics
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COURSE OUTCOMES	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.
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TEXTBOOK	Balcı, M.,2008, Genel Matematik 1, Balcı Yayınları,Ankara
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OTHER REFERENCES	Balcı, M.,2007, Genel Matematik Problemleri 1, Balcı Yayınları, Ankara
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS	
WEEK	TOPICS
1	Functions
2	Essential functions and their graphs
3	Trigonometric, Exponential, Logarithmic and Hyperbolic functions
4	Limits
5	Continuity
6	Mid-Term Examination 1
7	Derivatives and differentiation formulas
8	Derivatives of Trigonometric, Exponential, Logarithmic and Hyperbolic functions
9	L'Hospital's Rule, A geometric approach to the derivative, problems involving maxima and minima
10	Drawing curve, indefinite integrals
11	Mid-Term Examination 2
12	Integration formulas, definite integrals
13	Applications of integration
14	Improper integrals, polar coordinates
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and engineering; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[x]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[x]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[x]	[]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[x]	[]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[x]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[x]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[x]	[]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[x]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311196	COURSE NAME	Physics Lab I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	0	0	2	1	2	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term		
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report	5	50
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
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COURSE DESCRIPTION	General instructions; measurements; free fall and projectile motion; Newton's second law; the simple pendulum and moment of inertia; hooke's law and spiral spring; viscosity
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COURSE OBJECTIVES	learning the basic principles and concepts of physics
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To use existing technology and to produce new technologies.
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COURSE OUTCOMES	To explain natural phenomena and analysis learn the science of physics, Understanding of scientific method and research skills.
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TEXTBOOK	M.C.Baykul, E.Ağın, S.Eroğlu, C.Aşıcı, Physics I-II Lab Manuel foe scientist and engineers, Eskisehir Osmangazi University
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OTHER REFERENCES	Ekem, N. Ve Şenyel, M., Fizik I-II Deneyleri
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS

WEEK	TOPICS
1	General instructions
2	measurements
3	free fall and projectile motion
4	free fall and projectile motion
5	Newton's second law
6	Mid-Term Examination 1
7	Newton's second law
8	the simple pendulum and moment of inertia
9	the simple pendulum and moment of inertia
10	hooke's law and spiral spring
11	Mid-Term Examination 2
12	hooke's law and spiral spring
13	viscosity
14	viscosity
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of ... engineering problems.	x		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department

COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311197	COURSE NAME	Chemistry
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	3	0	0	3	3	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	25
	2 nd Mid-Term	1	25
	Quiz		
	Homework	1	10
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	40

PREREQUIEITE(S)	
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COURSE DESCRIPTION	The properties of material and measurements, atoms and atomic theory, periodic table chemical compounds, chemical reactions stoichiometry, gases and gas mixtures, chemical thermodynamics.
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COURSE OBJECTIVES	To introduce the main subjects of chemistry, to give the fundamentals of chemistry to the engineering students.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	To gain the basic knowledge and concepts of chemistry and to understand the relation of chemistry with other sciences and engineering, to gain the capability to define and solve the problems of chemistry.
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COURSE OUTCOMES	By the end of this course the students will be able to: 1. Define, classify and explain the properties of materials, 2. Explain the concepts of atoms and atomic theory, 3. Explain and use the mole concepts and the Avogadro's law, 4. Explain and classify the chemical compounds, 5. Define, explain and use the relationship of the gaseous state, the properties of gases and gas laws, 6. Define the basic concepts of thermodynamics, explain the law of thermodynamics and use them in solving the thermochemistry problems.
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TEXTBOOK	Petrucci, H., Harwood, W. S., Herring, F. G., 2002 "Genel Kimya: İlkeler ve Modern Uygulamalar" (I. Cilt), Çeviri Editörleri: Uyar. T., Aksoy, S., Palme Yayıncılık, Ankara.
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OTHER REFERENCES	1. Mortimer, C. E. , 1988, Modern Üniversite Kimyası , I. ve II. Cilt, Çağlayan Kitabevi, İstanbul 2. Sienko, M. J., Plane, R. A., 1983, Temel Kimya , Savaş Yayınları, Ankara. 3. Erdik, E., Sarıkaya, Y., 1987, Temel Üniversite Kimyası , Hacettepe Taş Kitapçılık, Ankara.
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TOOLS AND EQUIPMENTS REQUIRED	Explain topics and solving related problems.
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COURSE SYLLABUS	
WEEK	TOPICS
1	Matter-Its properties and measurement. The scope of chemistry, the scientific method, properties and classification of matter, measurements of matter, uncertainties in scientific measurements.
2	Atoms and the atomic theory, early chemical discoveries and the atomic theory, electrons and other discoveries in atomic physics, atomic masses, chemical elements.
3	Introduction to the periodic table, the concept of the mole, the Avogadro constant, using the mole concept in calculation.
4	Chemical compounds, types of chemical compounds and their formulas, the mole concept and chemical compounds, composition of chemical compounds.
5	Chemical compounds; oxidation states; A useful toll in describing chemical compounds, naming organic and inorganic compounds.
6	Mid-Term Examination 1
7	Chemical reactions and chemical equation, the chemical equation and stoichiometry, chemical reaction in solution.
8	Chemical reactions and chemical equation, Determining the limiting reactant, other practical matters.
9	Gases: Properties of gases; gas pressure, the simple gas laws
10	Gases: Application of the ideal gas equation.
11	Mid-Term Examination 2
12	Gases in chemical reaction, mixtures of gases, kinetic-molecular theory of gases, non-ideal gases.
13	Thermochemistry, getting started; some terminology, work, heat, heat of reaction and calorimetry.
14	Thermochemistry: The first law of thermodynamics, heat of rection. ΔE and ΔH , Indirect determination of ΔH , Hess's law, standard enthalpies of formation, fuels as sources of energy.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	apply knowledge of mathematics, science, and engineering		X	
2	design and conduct experiments as well as to analyze and interpret data		X	
3	design a system, component, or process to meet desired needs		X	
4	Incorporate in a team work		X	
5	function on multi-disciplinary teams		X	
6	identify, formulate, and solve engineering problems		X	
7	use techniques, skills, and modern engineering tools necessary for engineering practice		X	
8	get an understanding of professional and ethical responsibility		X	
9	communicate effectively		X	
10	understand the broad education necessary to understand the impact of engineering solutions in a global and societal context			X
11	get a recognition of the need for, and an ability to engage in life-long learning		X	
12	gain a knowledge of contemporary issues		X	
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311198	COURSE NAME	Chemistry Laboratory
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	0	0	2	1	2	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term		
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report	6	70
	Others (.....)		
FINAL EXAM		1	30

PREREQUIEITE(S)	
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COURSE DESCRIPTION	Verification of the Law of Definite Proportions, calculation of the ideal gas constant and the molar volume of a gas, calculation of the equivalent weight and atomic mass of a metal, qualitative analysis, titrimetric analysis, Charles' Law
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COURSE OBJECTIVES	To give the abilities to obtain, evaluate, discuss, report and submit the experimental data by performing the experiments which are the applications of the knowledge of chemistry gained in the chemistry course and to achieve this in accordance with laboratory saffetly rules.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Providing the experimental chemistry knowledge and the abilities to obtain, evaluate, discuss, report and submit the experimental data, understanding the professional and ethical responsibility, being able to achive the study in groups, to conduct efficiend oral and written communication, understanding the impotance of life-long learning.
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COURSE OUTCOMES	By the end of this course the students will be able to obtain, analyze, discuss and submit the result of the following experiments. <ol style="list-style-type: none"> 1. Verification of the the Law of Definite Proportions, 2. Calculation of the ideal gas constant and the molar volume of a gas, 3. Calculation of the equivalent weight and atomic mass of a metal, 4. Qualitative analysis, 5. Titrimetric analysis, 6. Charles' Law
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TEXTBOOK	İnel, O. , Genel Kimya Laboratuvar Kılavuzu, Eskişehir
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OTHER REFERENCES	All chemistry and general chemistry lab. Textbooks
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TOOLS AND EQUIPMENTS REQUIRED	Laboratory equipments and experimental setups
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COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction
2	Establishing the experimental study groups
3	Explanations on the laboratory and safety rules and related subjects
4	Obtaining, evaluation, discussion and reporting the experimental data
5	Verification of the Law of Definite Proportions
6	Mid-Term Examination 1
7	Calculation of the ideal gas constant and the molar volume of a gas
8	Calculation of the equivalent weight and atomic mass of a metal
9	Qualitative analysis
10	Titrimetric analysis
11	Mid-Term Examination 2
12	Charles' Law
13	Make up of missed experiments
14	Make up of missed experiments
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	apply knowledge of mathematics, science, and engineering		X	
2	design and conduct experiments as well as to analyze and interpret data		X	
3	design a system, component, or process to meet desired needs	X		
4	Incorporate in a team work		X	
5	function on multi-disciplinary teams	X		
6	identify, formulate, and solve engineering problems	X		
7	use techniques, skills, and modern engineering tools necessary for engineering practice	X		
8	get an understanding of professional and ethical responsibility		X	
9	communicate effectively		X	
10	understand the broad education necessary to understand the impact of engineering solutions in a global and societal context		X	
11	get a recognition of the need for, and an ability to engage in life-long learning		X	
12	gain a knowledge of contemporary issues		X	

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311213	COURSE NAME	Information Technologies
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	1	0	2	0	3	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
25	25	()	50

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	15
	2 nd Mid-Term	1	25
	Quiz		
	Homework		
	Project		
	Report		
	Others (Worksheets)	10	20
FINAL EXAM		1	40

PREREQUISITE(S)

COURSE DESCRIPTION

- Concepts of Hardware and Software
- Operating Systems and Properties of Microsoft Windows Operating System
- Office Applications (Word Processor, Spreadsheets, Preparing Presentations and Database applications)
- Computer networks and the Internet
- Usage of E-mail Services

COURSE OBJECTIVES

Students will gain basic skills for computer usage in the topics of general information about Computers (Software & Hardware), Operating Systems, Word Processors, Spreadsheets, Preparing Presentations, Database Applications, Computer Networks, E-mail and the Internet.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

Teaching basic computer applications which are used at production and management. Moreover, paving students' way to learn advanced software.

COURSE OUTCOMES

- Students will be able to:
1. Use peripheral units as keyboard, mouse, monitor, printer etc... effectively.
 2. Complete electronic file operations as saving, renaming, moving, copying and deleting files and folders.
 3. Use an operating system effectively.
 4. Prepare documents, modify pages, add objects to documents and printout them.
 5. Modify spreadsheets, use formulas and functions, create graphs and printout them.
 6. Prepare slide shows, add effects and transitions to slides, printout

	them. 7. Use the Internet and e-mail services effectively.
TEXTBOOK	Bal, H.Ç., 2009, Bilgisayar ve İnternet Kullanımı, Murathan Yayınevi, Trabzon.
OTHER REFERENCES	A projector and all the materials which can be useful for the teaching/learning process like presentations, videos etc...
TOOLS AND EQUIPMENTS REQUIRED	Lecturing and practicing at computer laboratory, sample exercises about the topics and let students to complete topic related exercises on computers.

COURSE SYLLABUS	
WEEK	TOPICS
1	Computers and Basic Concepts
2	Concepts of Hardware and Software, Operating Systems
3	Microsoft Windows Operating System
4	Office Applications, Word Processors, Microsoft Word (Word Processor)
5	Microsoft Word (Word Processor)
6	Mid-Term Examination 1
7	Microsoft Word (Word Processor)
8	Spreadsheets, Microsoft Excel (Spreadsheet)
9	Microsoft Excel (Spreadsheet)
10	Microsoft Excel (Spreadsheet)
11	Mid-Term Examination 2
12	Presentation Tools, Microsoft PowerPoint (Presentation Tool)
13	Database Applications, Microsoft Access (Database Application)
14	Computer Networks, Usage of the Internet and e-mail services
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial Engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial Engineering problems.	[]	[x]	[]
2	Ability to determine, define, formulate and solve complex Industrial Engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[x]	[]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[x]	[]	[]
4	Ability to develop, select and use modern methods and tools required for Industrial Engineering applications; ability to effective use of information technologies.	[]	[x]	[]
5	In order to investigate Industrial Engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[x]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[x]	[]	[]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[x]	[]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[]	[x]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[x]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151011209	COURSE NAME	ENGLISH I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	3	0	0	3	3	COMPULSORY (+) ELECTIVE (-)	TURKISH
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
				()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	60	
PREREQUIEITE(S)							
COURSE DESCRIPTION				Fundamental concepts and knowledge			
COURSE OBJECTIVES				This lesson is programmed to give the basic vocabulary and grammar and make the students hear, understand, speak and write in English at elementary level.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				This course is aimed at : Using the basic grammar rules The ability to use the target language in an English setting Understanding and making dialogues The ability to understand what's read The ability to communicate with English-speaking people The ability to write in the target language.			
COURSE OUTCOMES				At the end of the course students are able to : Use the basic grammar rules Understand and make dialogues Read and apprehend reading materials Communicate through writing and speaking			
TEXTBOOK				1. Essential English, Beginner Student's Book, Richmond Publishing 2. Essential English, Workbook, Richmond Publishing			
OTHER REFERENCES				1. Murphy, R., 2004, English Grammar in Use , Cambridge University Press, 2. Dictionary of Contemporary English , Longman. Start Up Comprehensive English Practice, 2007, Nüans Publishing			
TOOLS AND EQUIPMENTS REQUIRED				Course book, workbook, CD player, loudspeakers, dictionary.			

COURSE SYLLABUS

WEEK	TOPICS
1	Subject Pronouns, indefinite article, a/an, To be, NICE TO MEET YOU
2	Verb be (am, is, are) I'M FINE THANKS
3	Plurals, Wh questions, this, that, these, those WHAT IS THIS IN ENGLISH ?
4	Verb be, Wh questions, Nationalities WHERE ARE YOU FROM
5	Modals: can, can't I'M A JOURNALIST
6	Mid-Term Examination 1
7	Prepositions of time and place. On, in, at ALL ABOUT YOU
8	Simple present tense. Who IN PARIS ON THURSDAY
9	Possessive pronouns, Possessive 's HOW OLD IS HE ?
10	Present Simple tense, questions, short answers HIS MUSIC, HER SHOW, THEIR CHARITIES
11	Mid-Term Examination 2
12	Present simple, DO YOU HAVE A BIG FAMILY ?
13	Present Simple, Wh questions MEET YOUR PERFEC PARTNER
14	Present Simple, Revision WHAT DO YOU DO AT THE WEEKEND
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate industrial problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311181	COURSE NAME	TURKISH LANGUAGE I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	2	0	0	0	2	COMPULSORY (X) ELECTIVE ()	TURKISH

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
		()	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	50
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	-
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COURSE DESCRIPTION	Definition of language, language families on the world and Turkish's place among the world languages, the historical development of Turkish written language, phonetic word recognition events in Turkish. Gain the ability to write proper composition.
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COURSE OBJECTIVES	Informing students about the current state of development and the richness of Turkish language, bring awareness of a national language, literally to know about the subtleties about Turkish and be able to use them in their daily lives to ensure.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Provides to students speak and write Turkish correctly write in their daily lives, gain the ability to express themselves in the best way to themselves and their works in their jobs.
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COURSE OUTCOMES	Students will express language families on the world and Turkish's place among the world languages. Define the rules of Turkish. Makes a difference to sound events Apply the spelling rules. Spelling rules apply. Create written and oral composition. Use the language correctly.
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TEXTBOOK	1. Kültür, M. E., 1997, Üniversiteler İçin Türk Dili, Bayrak Yayınları, İstanbul.
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OTHER REFERENCES	1. Kaplan, M., 1993, Kültür ve Dil, 8. baskı, Dergah Yayınları, İstanbul. 2. Fuat, M., 2001, Dil Üstüne, Adam Yayınları, İstanbul.
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TOOLS AND EQUIPMENTS REQUIRED	DVD, VCD, projector, computer
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COURSE SYLLABUS

WEEK	TOPICS
1	Definition and Characteristics of Language
2	Languages on the world and Turkish's place among the world languages from origin and structure sides
3	Language Importance for culture and nationality, Language Policies
4	Speech Language and Specifications (Polish, Accent, Oral)
5	Writing Language and Specifications
6	Mid-Term Examination 1
7	Classification of Sounds
8	Volume Changes, Sound Events
9	Rules of Writing
10	Rules of Writing
11	Mid-Term Examination 2
12	Rules of Writing
13	Written Composition Studies
14	Studies of planned essay writing
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and engineering; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.			
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.			
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311211	COURSE NAME	Introduction to Engineering
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	2	0	0	2	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
15		40		45 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework		1	20
				Project			
				Report			
Others (.....)							
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				After the orientation program "Industrial engineer who?", "What works in areas", "What does he do?" answers to questions like, industrial engineering in the world and in our country, its historical development, major issues and concepts related to industrial engineering, industrial engineers approach and a variety of problems, problem-solving techniques, examples of the work of our graduates and the profession of occupational thoughts, observations at technical visits to production facilities.			
COURSE OBJECTIVES				Purpose of this course, students from our department on campus and to provide information about the department, department web site to inform you, our department is to introduce students to help adapt to the section by giving students and professional ethics, concepts of engineering and engineers to introduce the concept and industrial engineering.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Recognize the profession of engineering, and fields of study and professional ethics grasp the significance of the solution approach.			
COURSE OUTCOMES				1. Engineering problem-solving steps in the industrial engineering, taking into account the ability to solve problems faced. 2. Knowing the ethics of profession, professional ethics to act with the appropriate skills.			
TEXTBOOK				Özilgen Mustafa, 2009, Endüstrileşme Sürecinde Bilgi Birikiminin Öyküsü, Arkadaş Yayınları, ISBN:9755095684.			
OTHER REFERENCES				1. Turner, W. C., Mize, J. H., Case, K. E. (1987). Introduction to Industrial and Systems Engineering, Prentice-Hall International. (T56.T87). Bu kitabın Türkçe çevirisi yapılmıştır. Endüstri ve			

	Sistem Mühendisliğine giriş. Çevirenler: Ufuk Kula, Orhan Torkul, Harun Taşkın, Değişim yayınları, 2006. 2.Yüzügüllü N., 1997, Endüstri Mühendisliğine Giriş Ders Notları, Osmangazi Üniversitesi. Eskişehir 3. Ulusoy, G., 1982, Endüstri Mühendisliği - Bir Tanıtma, Boğaziçi Üniversitesi, End. Müh. Bölümü, Taslak Bildiri No: 8211.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Orientation Program: The university and the department to have information about
2	Orientation Program: Bachelor's degree education and examination regulations, the disciplinary regulations, the student information system, student clubs
3	Orientation Program: Minor and double branch, Erasmus, Farabi, summer school and internships
4	Orientation Program: What is engineering? is it a profession? graduates organization, Industrial Engineering Student Society (EMÖT)
5	Engineering profession and industrial engineering
6	Mid-Term Examination 1
7	Professional ethics
8	History of engineering education
9	Emergence of industrial engineering, in the world and the development of our country
10	Technical tour to observe a factory environment
11	Mid-Term Examination 2
12	Approach to the problems in industrial engineering
13	Short presentations related to homework topics
14	Seminar
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151311117	COURSE NAME	Technical Drawing
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	2	2	0	3	4	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
-	60		40 ()			-	
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	35
				2 nd Mid-Term		1	
				Quiz		2	10
				Homework			
				Project			
				Report			
Others (.....)							
FINAL EXAM					1	55	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Drawing Tools and their use, geometric drawings, paintings appearance and perspective drawing, section views, dimensioning principles.			
COURSE OBJECTIVES				Thinking by providing a three-dimensional perspective and look for the creation of various work pieces, resizing, and give the ability to revive in a product to be manufactured.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Manufacturing drawings for the products to be manufactured to draw, to teach appreciation of drawn pictures.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. To be able to select to select and use modern techniques and tools that are required. 2. Work to achieve the appearance of parts of the projection methods and practices for identification. 3. Ability to structure a complex three-dimensional modeling of various work pieces. 4. In parallel with developments in technology in the production and awareness of information technology. 			
TEXTBOOK				1. KIRAÇ, N., 2009, Teknik Resim (3.Baskı), Nobel Yayın Dağıtım Ltd.Şti., Ankara			
OTHER REFERENCES				<ol style="list-style-type: none"> 1. ÖZDAŞ, M.N., GEDİKTAŞ, M., 1981, Teknik Resim (3.Basım), İ.T.Ü. Makine Fakültesi Ofset Atölyesi, İstanbul. 2. ŞEN, İ.Z., ÖZÇİLİNGİR, N., 2002, Teknik Resim, Ege Reklam Basım Sanatları Tesisleri, İstanbul 			
TOOLS AND EQUIPMENTS REQUIRED				Projection			

COURSE SYLLABUS

WEEK	TOPICS
1	Technical illustration drawing tools, standard text and lines
2	Technical illustration geometrical drawings
3	Bodies standard views, projection methods, appearances selection
4	Standard drawing appearances
5	Auxiliary views, rotated elevations
6	Mid-Term Examination 1
7	Perspective pictures (inclined parallel perspective, isometric perspective), Sample applications
8	Perspective pictures (inclined parallel perspective, isometric perspective), Sample applications
9	Perspective pictures (inclined parallel perspective, isometric perspective)
10	Appearances cross-section (full section, half section, partial section, on-site frozen section, section appearance moved out)
11	Mid-Term Examination 2
12	Appearances cross-section (cross-section reinforcement wings, curtains, ears, arms)
13	Cross-section elevations, Sample applications
14	Dimensioning
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	Fall
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COURSE CODE	151311185	COURSE NAME	Seminar I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	2	0	0	0	0	COMPULSORY () ELECTIVE ()	Turkish

COURSE CATAGORY			
Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
		()	

ASSESSMENT CRITERIA			
MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	50
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50
PREREQUIEITE(S)			
COURSE DESCRIPTION			
COURSE OBJECTIVES			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION			
COURSE OUTCOMES			
TEXTBOOK			
OTHER REFERENCES	Banger G., 2016, Endüstri 4.0 ve Akıllı İşletme, Dorlion Yayınevi Related web sites		
TOOLS AND EQUIPMENTS REQUIRED			

COURSE SYLLABUS	
WEEK	TOPICS
1	Information about course evaluation
2	Reading related passages and discussion
3	Reading related passages and discussion
4	Reading related passages and discussion
5	Reading related passages and discussion
6	Reading related passages and discussion
7	Reading related passages and discussion
8	Mid Term Exam
9	Mid Term Exam
10	Reading related passages and discussion
11	Reading related passages and discussion
12	Reading related passages and discussion
13	Reading related passages and discussion
14	Reading related passages and discussion
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and mechanical engineering; an ability to apply theoretical and practical knowledge on solving and modeling of mechanical engineering problems.	[]	[]	[]
2	Ability to determine, define, formulate and solve complex mechanical engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[]
4	Ability to develop, select and use modern methods and tools required for mechanical engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate mechanical engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[x]	[]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[]	[x]
9	Understanding of professional and ethical issues and taking responsibility	[]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[]	[]	[x]

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):

SEMESTER II



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312196	COURSE NAME	Physics II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	3	0	0	3	3	COMPULSORY (x) ELECTIVE ()	Türkçe

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	25
	2 nd Mid-Term	1	25
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
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COURSE DESCRIPTION	Electric Charges; Coulomb's Law; The Electric Field; Electric Potential; Capacitance and Dielectrics; Current and Resistance; Magnetic Fields; Sources of the Magnetic Field; Faraday's Law
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COURSE OBJECTIVES	To teach the basic concepts and laws of physics and practices of daily life.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	In practice, varieties of physical systems to recognize and solve problems and at the same time improve their ability to practice in daily life. Using them, students will realize the role of physics in applied sciences such as health sciences and engineering.
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COURSE OUTCOMES	Students realize of the variety problems of physical systems and solve these problems. Understands the importance of measurement and the units. Physical systems apply in their personal daily life. Recognizes the role of physics in engineering and health sciences. The basic laws of physics and concepts.
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TEXTBOOK	Sears and Zemansky's UNIVERSITY PHYSICS WITH MODERN PHYSICS 12 TH Edition, PEARSON Addison Wesley (2008).
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OTHER REFERENCES	Halliday, D. , Resnick, R., & Walker, J. (2006) 6th ed. Fundamentals of Physics. New York: John Wiley & Sons, Inc. Serway, R.A. (1990). Physics for Scientists and Engineers. Philadelphia: Saunders College Publishing.
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS

WEEK	TOPICS
1	Electric Charges; Coulomb's Law
2	The Electric Field
3	Electric Potential
4	Capacitance and Dielectrics
5	Capacitance and Dielectrics
6	Mid-Term Examination 1
7	Current
8	Electrical work and power
9	Kirchhoff's Rules
10	Kirchhoff's Rules
11	Mid-Term Examination 2
12	Magnetic fields
13	Sources of the Magnetic Field
14	Faraday's Law
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.	x		
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312197	COURSE NAME	Physics Lab II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	0	0	2	1	2	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
100		()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term		
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report	5	50
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
COURSE DESCRIPTION	General instructions; Electrolysis; Magnetic Force; Ohm's Law; Resonance tube and stable waves; transformers
COURSE OBJECTIVES	learning the basic principles and concepts of physics
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To use existing technology and to produce new technologies.
COURSE OUTCOMES	To explain natural phenomena and analysis learn the science of physics, Understanding of scientific method and research skills.
TEXTBOOK	M.C.Baykul, E.Algın, S.Eroğlu, C.Aşıcı, Physics I-II Lab Manuel foe scientist and engineers, Eskişehir Osmangazi University
OTHER REFERENCES	Ekem, N. Ve Şenyel, M., Fizik I-II Deneyleri
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	General instructions
2	Electrolysis
3	Electrolysis
4	Magnetic force
5	Magnetic force
6	Mid-Term Examination 1
7	Ohm's law
8	Ohm's law
9	Transformers
10	Transformers
11	Mid-Term Examination 2
12	Resonance tube and stable waves
13	Resonance tube and stable waves
14	Compensated experiments
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.	x		
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312205	COURSE NAME	Calculus 2
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	4	0	0	4	5	COMPULSORY (√) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
√				()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	25
				2 nd Mid-Term		1	25
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	50	
PREREQUIEITE(S)							
COURSE DESCRIPTION				Sequences and series, vector functions, functions of several variables, multiple integrals and its applications			
COURSE OBJECTIVES				The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of problems			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				To apply theoretical and practical knowledge on solving and modeling of engineering problems by using sufficient knowledge of engineering subjects related with mathematics			
COURSE OUTCOMES				Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
TEXTBOOK				Balcı, M.,2010, Genel Matematik 2, Balcı Yayınları,Ankara			
OTHER REFERENCES				Balcı, M.,2009, Genel Matematik Problemleri 1, Balcı Yayınları, Ankara			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS	
WEEK	TOPICS
1	Sequences and series
2	Vector functions
3	Functions of several variables, limits and continuities of them
4	Partial derivatives and chain rules
5	Derivative of implicit functions, the gradient and directional derivatives
6	Mid-Term Examination 1
7	Evaluating double integrals and double integral over nonrectangular regions
8	Finding volumes and areas by double integration
9	Finding mass and center of gravity by double integration
10	Moments and moments of inertia of plane regions
11	Mid-Term Examination 2
12	Triple integrals
13	Triple integrals in cylindrical and spherical coordinates
14	Applications of triple integrals (evaluating volume, mass and moments of inertia)
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.	[]	[]	[x]
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[x]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[x]	[]
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.	[]	[x]	[]
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[x]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[x]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[x]	[]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[x]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312199	COURSE NAME	Basic Computer Sciences
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGU AGE
2	2	0	2	3	4	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
50	25	()	25

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	15
	2 nd Mid-Term	1	25
	Quiz		
	Homework		
	Project		
	Report		
	Others (Worksheets)	10	20
FINAL EXAM		1	40

PREREQUISITE(S)	
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COURSE DESCRIPTION	Computers, Operating Systems and Programming Languages. Concepts of structured and modular programming. Modern software development and visual programming. Concept of Object-Oriented Programming (OOP). Visual programming packs. Visual Basic (VB), visual programming environment. VB quick parts. Data types, constants and variables. Type casting functions. Conditional expressions. Loop functions and differences between them. Procedures, functions and differences between them. Common VB built in functions. Popular sorting algorithms and quick-sort algorithm. Files and filing functions.
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COURSE OBJECTIVES	Introducing to computers, operating systems and programming languages. Making students understand what object-oriented programming is and working with objects. Introducing visual programming packs and Visual Basic (VB) visual programming environment. Making students coding in VB with the logic of Object-Oriented Programming. Pave students' way to solve job related problems via programming skills.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	Providing basic computer and programming skills to solve different complex problems occurs in students' future career and create important information systems like decision support systems, expert systems and executive support systems.
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COURSE OUTCOMES	Students will be able to: <ol style="list-style-type: none"> 1. Evaluate limitations of the intended system or problem, 2. Assess required computer skills for a problem, 3. Design algorithms and programs to solve the problem. 4. Acquire basic programming skills which are useful for
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	Industrial Engineering Applications.
TEXTBOOK	1. Karagülle, İ. ve Pala, Z., 2002. Visul Basic 6.0 Pro , 2. Edition, Türkmen Kitabevi, İstanbul.
OTHER REFERENCES	1. Yanık, M., 2004, Visual Basic ile Programlama, Cilt I, Seçkin Yayınları 2. Yanık, M., 2005, Visual Basic ile Programlama, Cilt II, Seçkin Yayınları 3. Balena, F., 1999, Programming Microsoft Visual Basic 6.0, Microsoft Press
TOOLS AND EQUIPMENTS REQUIRED	Lecturing and practicing at computer laboratory, sample exercises about the topics and let students to complete topic related exercises on computers.

COURSE SYLLABUS	
WEEK	TOPICS
1	Computers, Operating Systems, Programming Languages and Object-Oriented Programming
2	Visual programming, Visual programming packs, Visual Basic (VB) Programming Environment
3	Visual Basic – Quick parts, key features, methods and events
4	Standard data types, user defined data types, constants, variables and type casting
5	Operators, Input box and Message box
6	Mid-Term Examination 1
7	Conditional expressions, If-Then-Else, Select-Case
8	Sample Exercises
9	Looping Expressions, For-Next, Do-Loop, While-Wend
10	Sample Exercises
11	Mid-Term Examination 2
12	Procedures and functions (differences, strong and weak aspects)
13	Sample Exercises
14	Popular sorting algorithms and Quick Sort
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial Engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial Engineering problems.	[]	[x]	[]
2	Ability to determine, define, formulate and solve complex Industrial Engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[x]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[x]	[]
4	Ability to develop, select and use modern methods and tools required for Industrial Engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate Industrial Engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[x]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[x]	[]	[]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[x]	[]	[]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[x]	[]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[x]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE 151012210	COURSE NAME ENGLISH II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	3	0	0	0	3	COMPULSORY (+) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
				()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	60	
PREREQUIEITE(S)							
COURSE DESCRIPTION				Fundamental concepts and knowledge			
COURSE OBJECTIVES				This lesson is programmed to give the basic vocabulary and grammar and make the students hear, understand, speak and write in English at elementary level.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				This course is aimed at : Using the basic grammar rules The ability to use the target language in an English setting Understanding and making dialogues The ability to understand what's read The ability to communicate with English-speaking people The ability to write in the target language			
COURSE OUTCOMES				At the end of the course students are able to : Use the basic grammar rules Understand and make dialogues Read and apprehend reading materials Communicate through writing and speaking			
TEXTBOOK				3. Essential English, Beginner Student's Book, Richmond Publishing 4. Essential English, Workbook, Richmond Publishing			
OTHER REFERENCES				Murphy, R., 2004, English Grammar in Use, Cambridge University Press, Dictionary of Contemporary English, Longman. Start Up Comprehensive English Practice, 2007, Nüans Publishing			
TOOLS AND EQUIPMENTS REQUIRED				Course book, workbook, CD player, loudspeakers, dictionary			

COURSE SYLLABUS

WEEK	TOPICS
1	Subject Pronouns, indefinite article, <i>a/an, To be</i> , NICE TO MEET YOU
2	Verb be (am, is, are) I'M FINE THANKS
3	Plurals, Wh questions, this, that, these, those WHAT IS THIS IN ENGLISH ?
4	Verb be, Wh questions, Nationalities WHERE ARE YOU FROM
5	Modals: can, can't I'M A JOURNALIST
6	Mid-Term Examination 1
7	Prepositions of time and place. On, in, at ALL ABOUT YOU
8	Simple present tense. Who IN PARIS ON THURSDAY
9	Possessive pronouns, Possessive 's HOW OLD IS HE ?
10	Present Simple tense, questions, short answers HIS MUSIC, HER SHOW, THEIR CHARITIES
11	Mid-Term Examination 2
12	Present simple, DO YOU HAVE A BIG FAMILY ?
13	Present Simple, Wh questions MEET YOUR PERFEC PARTNER
14	Present Simple, Revision WHAT DO YOU DO AT THE WEEKEND
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for industrial industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			x
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE :151312206	COURSE NAME Economics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	3	0	0	3	4	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
20			(20)				60
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	30	
				2 nd Mid-Term	1	30	
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)							
COURSE DESCRIPTION				Demand and supply models, the company's production and cost functions, market types, short-and long-term profit maximum, the country's GDP, inflation and unemployment definitions, economic policies, growth and development, and definitions of development, the concept of sustainable development.			
COURSE OBJECTIVES				To describe the basic concepts of economics and to identify and understand the behavior of economic units, to understand the limits and potentials of economic policies			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				To teach how the economic units decide about increasing the level of economic prosperity and how they implement in the economy			
COURSE OUTCOMES				1. To be able to analyze and interpret economic events, 2. Ability to understand how consumer made the decision about the maximum level of benefits 3. To be able to analyze and interpret the appropriateness of economic policies. 4. To be able to understand the effective use of production resources in a sustainable manner			
TEXTBOOK				İktisada Giriş, 2009, A.Ü. Açık Öğretim Fak. Yayın No: 758, Eskişehir.			
OTHER REFERENCES				1. Dinler, Z., 2000, İktisada Giriş , Ekin Kitapevi, 5. basım. 2. Unsal, E., 2005, Mikro İktisat , 6. baskı, Ankara 3. Parasız, İ., 2005., İktisada Giriş, Bursa.			
TOOLS AND EQUIPMENTS REQUIRED				Lectures, problem solving, analyzing case studies and discussions.,			

COURSE SYLLABUS

WEEK	TOPICS
1	Description of the economy, Basic Concepts, Scarcity, choice and benefit
2	Demand and Supply Model
3	Supply and demand applications
4	Production and Costs and Markets
5	Factor market public goods and the Environment)
6	Mid-Term Examination 1
7	The definition of the macro economy
8	National income and macro-economic stability
9	AD- AS model y
10	International Finance Fiscal policy and monetary policy
11	Mid-Term Examination 2
12	Economic growth
13	Development
14	sustainable development ,
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	x		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	x		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	x		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		x	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			x
9	Understanding of professional and ethical issues and taking responsibility		x	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		x	
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312123	COURSE NAME	Introduction to Industrial Engineering
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	3	0	0	3	5	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
15		(75)	10

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	40
	2 nd Mid-Term	1	20
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	40

PREREQUISITE(S)	
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COURSE DESCRIPTION	This course includes issues about the basic concepts and techniques of production systems design, system concept, system engineering, manufacturing engineering, plant layout, material handling systems, operations research, work study, production planning and quality control information
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COURSE OBJECTIVES	To give the ability to know the solution to the problems and approaches related field and to give information about industrial engineering
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Recognize the profession of industrial engineering, including the work area to prevent issues, understand the importance of professional ethics.
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COURSE OUTCOMES	<ol style="list-style-type: none"> 1. To solve industrial engineering problems by using engineering problem-solving steps 2. Knowing the ethics of profession, to act with professional ethics 3. Access to information, continuous self-renewal ability to follow developments in science and technology a
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TEXTBOOK	Turner, W. C., Mize, J. H., Case, K. E., (Çevirenler: Ufuk Kula, Orhan Torkul, Harun Taşkın), 2006, Endüstri ve Sistem Mühendisliğine Giriş, Değişim yayınları.
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OTHER REFERENCES	Öztemel E.(ed.), 2009, Endüstri Mühendisliğine Giriş, Papatya Yayıncılık Eğitim, ISBN 978-975-6797-89-1.
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TOOLS AND EQUIPMENTS REQUIRED	Lecture slides, seminars,
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COURSE SYLLABUS

WEEK	TOPICS
1	Course scope, evaluation professional ethics, history of IE and engineering
2	Definition of IE, IE education, work areas, the system concept, system engineering
3	Manufacturing engineering; (production process design, process engineering, breakeven analysis, industrial processes)
4	Facility Location and arrangement: (a mathematical model, location selection problem, outline, flow chart, work flow diagram, activity-relationship diagram)
5	Material handling system; (Hungarian algorithm, heuristic nearest city not visited, slicing and routing)
6	Mid-Term Examination 1
7	Work study (method study, micro-motion study, work measurement, time study, MTM) Production planning, demand forecasting (exponential smoothing, regression analysis)
8	Quality control (eight SPC essential tool), Pricing
9	Inventory management (retail version), Material Requirements Planning (MRP)
10	Operational Research (deterministic models, examples)
11	Mid-Term Examination 2
12	Simulation
13	Project management
14	Integrated system design, IE graduates participated as a speaker at seminars
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	x		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	x		
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		x	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	x		
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER | SPRING

COURSE CODE	151312182	COURSE NAME	TURKISH LANGUAGE II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
2	2	0	0	0	2	COMPULSORY (X) ELECTIVE ()	
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
						()	
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	50	
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	50	
PREREQUIEITE(S)				-			
COURSE DESCRIPTION				Structural Words: Word group, name, adjective, pronoun, adverb, preposition, conjunction, interjection verb, sentence, types of Written Composition, Types of Oral Composition, Speech Application, Prepared Speech Application, Text Analysis Studies.			
COURSE OBJECTIVES				Informing students about the current state of development and the richness of Turkish language, bring awareness of a national language, literally to know about the subtleties about Turkish and be able to use them in their daily lives to ensure.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Provides to students speak and write Turkish correctly write in their daily lives, gain the ability to express themselves in the best way to themselves and their works in their jobs.			
COURSE OUTCOMES				Define the rules of Turkish. Define and classify the phrase in terms from structure Analyze the structure of the sentence Create written and oral composition Use the language correctly			
TEXTBOOK				Kültür, M. E., 1997, Üniversiteler İçin Türk Dili, Bayrak Yayınları, İstanbul. Yavuz, K., Yetiş, K., Birinci, N., 1999, Üniversite Türk Dili ve Kompozisyon Dersleri, Bayrak Yayınları, İstanbul.			
OTHER REFERENCES				Kaplan, M., "Kültür ve Dil", 8. baskı, Dergah Yayınları, İstanbul, 1993. Fuat, M., "Dil Üstüne", Adam Yayınları, İstanbul, 2001. Aksan, D., "Türkçe'nin Gücü", Bilgi Yayınevi, 4. baskı, Ankara, 1997.			
TOOLS AND EQUIPMENTS REQUIRED				DVD, VCD, projector, computer			

COURSE SYLLABUS

WEEK	TOPICS
1	Structural Words: Word group
2	Name
3	Adjective
4	Pronoun
5	Adverb
6	Mid-Term Examination 1
7	Preposition, Conjunction, Interjection
8	Verb
9	Sentence, the sentence Components
10	Types of Written Composition
11	Mid-Term Examination 2
12	Types of Oral Composition
13	Prepared Speech Application, extempore Speech Application
14	Text Analysis Studies
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department

COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312208	COURSE NAME	FIRST AID
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
II	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
			100

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	Mid-Term		1
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	60

PREREQUIEITE(S)

COURSE DESCRIPTION

In this course, basic life support about first aid in suddenly-appeared diseases and accidents, carrying techniques, wounds come by traumas.

COURSE OBJECTIVES

Giving information about issues that the students will often come across in first aid and upskilling them.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

Teaching proper and conscious intervention practically, to save life in first aid required cases, to prevent it from getting worsen and to provide healing

COURSE OUTCOMES

- 1.To gain first aid ability in case of an emergency disease / accident appeared in the professional area.
- 2.By taking first aid education, to gain the ability of acting with the responsibility and conscience for applying the proper first aid on the instant of an emergency disease / accident.
- 3.To gain the ability of communicating with patient and health staff.

TEXTBOOK

Anık , N., Tülek,A. 2015, **İlk Yardım** ESOĞÜ Eskişehir.

OTHER REFERENCES

Güler Ç., Bilir N. Temel İlk Yardım (C-D düzeyleri) T.C.Sağlık Bakanlığı Sağlık Projesi Genel Koordinatörlüğü Çevre Sağlığı Temel Kaynak Dizisi, No:14, Aydoğdu Ofset, Ankara, 1994. (in Turkish)
Tülek, A. Ve Anık, N. 2008 Temel İlk yardım Uygulamaları Ders notları ESOĞÜ SHMYO ,Eskişehir

TOOLS AND EQUIPMENTS REQUIRED

Barco vision, power point presentation, Basic Life Support maquette, wound maquette, ateles used in anaclasis, first aid bag, other equipments. computer

COURSE SYLLABUS

WEEK	TOPICS
1	First aid, emergency care, 6 T rule in first aid, the responsibilities of first aider, first aid bag, primary target of first aid.
2	Transportation of sick and injured
3	. The reasons of airway congestion and first aid.
4	Cardio-pulmoner resuscitation Basic life support (Airway-Breathing-Circulation – ABC).
5	Cardio-pulmoner resuscitation students practices
6	Bleedings (internal and external bleedings – nose, ear bleedings) and first aid.
7	First aid in shocking, fainting, convulsion and coma.
8	Mid-Term Examination
9	Mid-Term Examination
10	First aid in frostbite, First aid in burns
11	First aid in environmental emergencies (Heat stroke, freeze)
12	First aid in broken bones, dislocation and strains
13	First aid for poisoning
14	First aid for animal bites , First aid in special diseases
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[]	[]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[X]	[]
9	Understanding of professional and ethical issues and taking responsibility	[X]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[X]	[]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151312207	COURSE NAME	PHOTOGRAPHY
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
SPRING	2	0	0	2	2	COMPULSORY () ELECTIVE (X)	TURKISH
COURSE CATAGORY							
Basic Science	Basic Engineering		Civil Engineering Subjects [if it contains considerable design, mark with (√)]				Social Science
							X
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1st Mid-Term			
				2nd Mid-Term			
				Quiz			
				Homework		1	50
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	50	
PREREQUISIT(S) IF ANY							
SHORT COURSE CONTENT				This course intends the history of photography, the use of digital machines from analog machines, photograph techniques, the right use of the light and area depth and to learn the arrangement the photos in computer			
OBJECTIVES OF THE COURSE				To learn photography techniques giving all the information about photo to students, vaccinate personal producing and share sense, help to using their skills to the professional area			
CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING				This course will help to students the right use the photo with a scientific approach .			
LEARNING OUTCOMES OF THE COURSE				1.To support to scientific investigation. 2.To comprehend the photo knowledge 3.To learn the method about photography 4.To follow current information about photography			
MAIN TEXTBOOK				Fotoğrafçılık Ders Notları, Ünal Özelmas, 2012			
SUPPORTING REFERENCES				1. Modern Fotoğraf Sanatı, Ümit İmer, 1977 2. Amatör Fotoğrafçılık, Hasan Deniz, 1991 3. Fotoğraf Sanatı, Edouard Boubat, 1992 4. Her Yönüyle Fotoğrafçılık Tekniği, Erhan Ergün, 1993 5. Dijital Fotoğraf Rehberi, Özer Kanburoğlu, 2010 6. Dijital Fotoğrafçının El Kitabı (3. Cilt), Scott Kelby, 2010			
NECESSARY COURSE MATERIALS				Laptop computer, Photography machine, Data-Show equipment			

COURSE SYLLABUS	
WEEK	TOPICS
1	The history of photo - Introducing the analog photography machine
2	Introducing the digital photography machine
3	Photo terms - Hints about photo
4	Elements satisfying clear in photo
5	Bases of the photo - Diaphragm and snapshot in the photo
6	Diaphragm and shutter in photo
7	Contact lens and their types - Filter and assist materials
8	Homework
9	Homework
10	Digital photography guide - Menu arrangement in digital machines
11	Light in photo and composition
12	Photo arrangement in computer
13	Photo Simulator
14	Outside photo practice
15, 16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		X	
1: None. 2: Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature:



ESOGU Industrial Engineering Department

COURSE INFORMATION FORM

SEMESTER	Spring
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COURSE CODE	151312186	COURSE NAME	Seminar II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
1	2	0	0	0	0	COMPULSORY () ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
	x		

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term		1
2 nd Mid-Term			
Quiz			
Homework			
Project			
Report			
Others (.....)			
FINAL EXAM		1	50
PREREQUIEITE(S)			
COURSE DESCRIPTION	Information about industry and facilities in Eskisehir are provided		
COURSE OBJECTIVES			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION			
COURSE OUTCOMES			
TEXTBOOK			
OTHER REFERENCES	Related web sites		
TOOLS AND EQUIPMENTS REQUIRED			

COURSE SYLLABUS	
WEEK	TOPICS
1	Information about course evaluation
2	Reading related passages and discussion
3	Reading related passages and discussion
4	Reading related passages and discussion
5	Reading related passages and discussion
6	Reading related passages and discussion
7	Reading related passages and discussion
8	Mid Term Exam
9	Mid Term Exam
10	Reading related passages and discussion
11	Reading related passages and discussion
12	Reading related passages and discussion
13	Reading related passages and discussion
14	Reading related passages and discussion
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and mechanical engineering; an ability to apply theoretical and practical knowledge on solving and modeling of mechanical engineering problems.	[]	[]	[]
2	Ability to determine, define, formulate and solve complex mechanical engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[]
4	Ability to develop, select and use modern methods and tools required for mechanical engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate mechanical engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[x]	[]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[]	[x]
9	Understanding of professional and ethical issues and taking responsibility	[]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[]	[]	[x]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



SEMESTER III
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151011208	COURSE NAME	History of Turkish Revolution and Principles of Kemal Atatürk: I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	0	2	2	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

General Literature	Foreign Languages	Comparative Literature	Social Science
			x

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1st Mid-Term		
	2nd Mid-Term	1	40
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	60

PREREQUIEITE(S)	None
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COURSE DESCRIPTION	The Description of the term “revolution”; major historical events in the Ottoman Empire to the end of World War I; a general overview of Mustafa Kemal’s life; certain associations and their activities; arrival of Mustafa Kemal to Samsun; the congresses, gathering of the last Ottoman Assembly and the proclamation of the “national oath”; opening of the Turkish Grand National Assembly; War of independence to the Victory of Sakarya; Victory of Sakarya; financial sources of the war of independence; grand counter-attack; Armistice of Mudanya; abolition of the Sultanate; Peace Conference of Lausanne.
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COURSE OBJECTIVES	To help the students to appreciate the hard conditions under which the war of independence, under the leadership of Mustafa Kemal, was fought and how an independent Turkish state was created.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To underline the idea that the national unity based on the principle “peace in the country peace in the world” can only be achieved through political, economic and military progress.
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COURSE OUTCOMES	At the end of this course; Students 1.Explains Principles of Atatürk and main concepts related to Revolution history. 1.1.Explains the concepts of Reform/Revolution. 1.2.Describes the concept of National Forces. 1.3.Explains the concepts of Republic/Democracy. 1.4.Recognizes the concept of Ideology.
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	<p>2.Explains the main points of the period related to Turkish War of Independence and foundation of the Turkish State.</p> <p>2.1.Explains the developments at Ottoman Empire before Turkish Revolution.</p> <p>2.2.Describes the World War I and its results.</p> <p>2.3.Explains Turkish War of Independence.</p> <p>2.4.Recognizes Turkish Revolution.</p> <p>2.5.Remembers the main principles of Turkish foreign politics.</p> <p>2.6.Explains Principles of Atatürk and their importance.</p> <p>3.Explains the effects of the developments at Europe and World on Turkish Republic.</p> <p>3.1.Explains the effects of European and World politics on Turkey and the results of them.</p> <p>3.2.Describes the effects of Capitalism/Imperialism on Turkey.</p> <p>3.3.Explains the relations / problems between Turkey and its neighbours.</p> <p>3.4.Explains the importance of Turkey at Europe and World.</p>
TEXTBOOK	<p>Gazi Mustafa Kemal Atatürk, Nutuk (Söylev), C. I-II, TTK., Ank., 1986.</p> <p>İmparatorluktan Ulus Devlete Türk İnkılâp Tarihi, Cemil Öztürk (ed.), Ank., 2011.</p>
OTHER REFERENCES	<p>* Ateş,Toktamış.(2001)Türk Devrim Tarihi.İstanbul:Der Yayınları. *</p> <p>Aybars,Ergün.(200)Türkiye Cumhuriyeti Tarihi.İzmir:Ercan Kitabevi.</p> <p>* Eroğlu,Hamza.(1990)Türk İnkılap Tarihi.Ankara:Savaş Yayınları. *</p> <p>Kongar,Emre.(1999)Devrim Tarihi ve Toplum Bilim Açısından Atatürk.İstanbul.Remzi Kitabevi. *</p> <p>Selek,sebahattin.(1987)Anadolu İhtilali.İstanbul:Kastaç A.Ş.Yayınları. *</p> <p>Şamsutdinov,A.M.(1999)Mondros'tan Lozan'aTürkiye Ulusal Kurtuluş Savaşı Tarihi (1918-1923)Çeviren:Ataol Behramoğlu.İstanbul:Doğan Kitapçılık. *</p> <p>Timur,Taner.(1997)Türk Devrimi ve Sonrası.Ankara:İmge Kitabevi.</p>
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	The Balkan Wars. First World War and input to war Ottoman Empire. The fronts that Ottoman Empire fought and the results of the war.
2	Revolution, evolution, rebellion, coup and reform. The characteristics of the Turkish Revolution. the reasons of collapse of the Ottoman Empire.
3	Mondros Armistice Agreement and occupations on the Ottoman Empire.
4	National Independence War. The occupation of Izmir and effects of this occupation.
5	The preparation period of National Independence War
6	Mid-Term Examination 1
7	The movement of Mustafa Kemal to Samsun and to be started the organization of Anadolu Revolution. Amasya Circular, Erzurum and Sivas Congresses, to be founded of the Deputation.
8	Opening of the TBMM.
9	Rebellions against the TBMM.
10	Sevr Treaty.
11	Mid-Term Examination 2
12	To be founded "Kuva-yı Milliye" and national army.
13	Mudanya Armistice Agreement. Abolition of sultanate.
14	Lausanne Treaty.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Instructor(s):

Signature:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151315555	COURSE NAME	Discrete Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	0	2	3	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
70		-		30 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	60
				2 nd Mid-Term		1	
				Quiz			
				Homework		1	5
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	35	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Logic and proofs, set theory, algorithms, integers, functions, multi-matrices and matrices, reasoning, induction, counting, permutation, combination, recursive structures, relations and properties, graphs and trees, related software and package programs, engineering applications.			
COURSE OBJECTIVES				The goal of this course, introducing mathematical systems, and in particular to teach the fundamentals of discrete structures.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Mathematical thinking, learning how to create cause-and-effect relationship, depending on the different methods of counting, to be able able to analyze problems and find solutions, to be informed about discrete structures (clusters, permutations, relations, graphs, trees), algorithmic thinking, using discrete mathematics systems in solving the problems of industrial engineering, gaining the knowledge and skills to solve problems by a special-purpose software.			
COURSE OUTCOMES				1. Discrete and discrete systems analysis 2. Creating logical structures using the basic logic information 3. Creating algorithmic discrete structures			
TEXTBOOK				Discrete and Combinatorial Mathematics: An Applied Introduction, R.P. Grimaldi, Beşinci Basım, 2004			
OTHER REFERENCES				Ayrık Matematik, Ders Notları, Gebze Yüksek Teknoloji Enstitüsü. Discrete Mathematics and Its Applications, K.H.Rosen, Dördüncü Basım, 1999.			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	System concept and mathematical systems: continuous, infinite, discrete, finite systems
2	Sets: set operations, arrays,
3	Integers, matrices, mathematical structures
4	Logic: propositional
5	Conditional statements, methods of proof, induction, expressions, problem solving
6	Mid-Term Examination 1
7	Counting and repeated relations, relations, generic relations,
8	Lists, communication procedures, functions
9	Well as the relations and systems, plastic bag
10	Finite Boolean operations and expressions
11	Mid-Term Examination 2
12	Trees, binary trees, tree search
13	Undirected trees, includes trees,
14	Network flows, euler path, hamiltonian path, matching problems, splash coloring, discrete systems applications in industrial engineering
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151313556	COURSE NAME	Engineering Mechanics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
30		-		70 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	60
				2 nd Mid-Term		1	
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM						1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Engineering and problem solving, mechanics and engineering, basic concepts, external loads, linkages, free body diagramming, equilibrium, friction, truss systems, centroids and moments, virtual work, kinematics, mechanical efficiency, stress and strain, shear, bending, torsion, buckling, combined stresses.			
COURSE OBJECTIVES				The main aim of the course is to relate the basic science curriculum to engineering courses; customize the student to solve and report the problems systematically by using physical laws and engineering principles; to supply the basic knowledge involving engineering mechanics to comprehend the production systems that comprise of man-machine and materials.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				<ol style="list-style-type: none"> 1. Gain experience on the interrelations between real and model worlds, abstraction, assumption and neglecting, modeling skills and modeling in mechanical systems. 2. Understand the system concept, isolation, differentiation of real body, particle, rigid and elastic bodies, and characteristics of sections, basic loading schemes, and strength of materials. 3. Take into consideration of the possibility to apply the concepts, methods and techniques learned in this course to diverse areas. 			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Grasp the concepts of equilibrium, equilibrium in mechanics and other systems, static and dynamic equilibriums, stability in equilibrium. 2. Deal with the knowledge acquired from certain science and disciplines like mathematics, physics and materials science together with those learned, reminded and emphasized in engineering mechanics framework and common engineering problems solving systematic. 			
TEXTBOOK				Omurtag M. H.,2003, Mühendisler İçin Mekanik: Statik ve Mukavemet, Beta Basım A. Ş..			

OTHER REFERENCES	İşler, A., 2003, Mühendislik Mekaniği Ders Notları, Eskişehir Osmangazi Üniversitesi, Mühendislik-Mimarlık Fakültesi, Endüstri Mühendisliği Bölümü. Karaduman M. ve Umucalılar A., 2003, Uygulamalı Mekanik (statik) ve Mukavemet, Nobel Yayın Dağıtım. Palavan, S. ve Borat, O., 1970, Teknik Mekanik, Güven Kitapevi. Oydaşık, Ş. A., 1974, Mukavemet, İnkılâp ve Aka Kitapevi.
TOOLS AND EQUIPMENTS REQUIRED	Projection, blackboard

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction of the principles and execution
2	Engineering and problem solving, mechanical and engineering
3	Basic concepts, external loads
4	Links, free-body diagram, equilibrium
5	Friction, cage systems
6	Mid-Term Examination 1
7	The centers of gravity and moments
8	Equilibrium stability, the so-called principle of business
9	Kinematic, dynamic mechanical efficiency, machine law
10	Flexibility, stress and strain
11	Mid-Term Examination 2
12	The angle of deviation and cutting
13	Bending
14	Torsion, waist-making, composite strength
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151313557	COURSE NAME	Cost Analysis
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
15		5		80 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term		1	
				Quiz			
				Homework		1	10
				Project			
				Report			
Others (.....)							
FINAL EXAM						1	50
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Cost Accounting and Main Concepts; Overview of Cost Accounting; Classification of Costs: Materials costs, Labor costs, Manufacturing overhead costs; Cost Centers and Cost Allocations; Job Costing System; Process Costing System; Cost in Joint Production; Analysis of Accounting and Function of Management Decision-Making; Information for Planning: Cost-Volume-Profit Analyses, Break-even analysis; Use of Budgets as Planning Tools: Sales forecasting, Control and Decision Making; Cost accounting as a tool of performance evaluations.			
COURSE OBJECTIVES				Calculation of the product costs produced in the production enterprises, the classification of production costs, and the costs of the analysis of different methods.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Cost analysis course contributes Engineering Economics, Investment Analysis, Work Study, Productivity Management, Human Resource Management, Business Law, Multiple Criteria Decision Making, as well as help in many areas, such as Total Quality Management.			
COURSE OUTCOMES				By the end of this module students will be able to: <ol style="list-style-type: none"> 1. What the importance of cost information. 2. Learn the classification of costs. 3. How to compute product cost. 4. How works job costing system. 5. How works process costing system 6. Cost data for decision making. 7. Cost- volume-profit analyses 8. Break-even analysis 9. Learn the budgeting process. 10. Understand the performance evaluations. 			

TEXTBOOK	BÜYÜKMİRZA, Kamil. 2009, Yönetim ve Maliyet Muhasebesi, 14. Baskı. Gazi Kitabevi, Ankara.
OTHER REFERENCES	1. ÜSTÜN, R., 1996, Maliyet Muhasebesi, Bilim Teknik Yayınevi. Eskişehir 2. BURSAL, N. ve ERCAN, Y., 1995, Maliyet Muhasebesi, Açıköğretim Fakültesi Yayını No:476, Eskişehir 3. HACİRÜSTEMOĞLU, R. ve ŞAKRAK, M., 2002, Maliyet Muhasebesinde Güncel Yaklaşımlar, Türkmen Kitabevi. İstanbul
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Place of cost analysis system and basic concepts
2	Protomatter and material costs
3	Labor costs and general production costs - I. distribution
4	General production costs - II. distribution methods
5	General production costs - II. and III. distribution methods
6	Mid-Term Examination 1
7	United and by-products cost allocation
8	Job order costing system
9	Process costing system - I
10	Process costing system - II and production losses
11	Mid-Term Examination 2
12	Cost - Profit - Volume analysis
13	Cost control and standard costs through analysis of variance
14	Customer profitability analysis - Cost benefit analysis, analysis special administrative decisions
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151313560	COURSE NAME	Technical English I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	0	2	3	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
-		40		40 ()			20
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	60	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Technical writing more effectively, reading, English equivalents of technical terms related to the profession, to develop a better understanding and reading some books and periodicals related to the specific paragraphs of engineering examination.			
COURSE OBJECTIVES				The main objective of course, English equivalents of the technical terms related to industrial engineering knowledge skills.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				<p>Ability to communicate effectively verbally and in writing, ability to use the foreign language knowledge, access to information, science and technology developments in the foreign sources, monitoring and continuous self-renewal ability.</p> <p>Focus on industrial engineering and technical terms. To deal with the content of some of the technical terms, some of the technical terms to describe the ability to work in English, Dictionary support within a reasonable time without the ability to understand technical texts.</p> <p>And wastage of time in order to avoid misunderstanding ability to focus on becoming aware of the details.</p>			
COURSE OUTCOMES				<p>1. Oral and written communication skills</p> <p>2. To be able to use a foreign language</p> <p>3. Monitoring developments in technology and continuous self-development</p>			
TEXTBOOK							
OTHER REFERENCES				Reader At Work I-II, METU Press, 1997 Vocabulary			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	Vocational subjects texts, translated
2	Vocational subjects texts, translated
3	Vocational subjects texts, translated
4	Vocational subjects texts, translated
5	Vocational subjects texts, translated
6	Mid-Term Examination 1
7	Vocational subjects texts, translated
8	Vocational subjects texts, translated
9	Vocational subjects texts, translated
10	Vocational subjects texts, translated
11	Mid-Term Examination 2
12	Vocational subjects texts, translated
13	Vocational subjects texts, translated
14	Vocational subjects texts, translated
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151313561	COURSE NAME	Probability
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	3	0	0	3	4	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
55	10	35 ()	-

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	20
	2 nd Mid-Term	1	30
	Quiz	1	15
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	35

PREREQUISITE(S)	-
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COURSE DESCRIPTION	Probability and related fundamental concepts, experiments and events, probability axioms, counting techniques, conditional probability, independent events, random variables and related special functions, the expected value and variance calculation, Chebyshev's inequality, important discrete and continuous probability distributions, Central Limit Theorem, joint probability distributions.
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COURSE OBJECTIVES	The main aim of the course is to introduce students with the probability and fundamental concepts in probability, random variables, important probability distributions and their properties, mathematical expectation and variance concepts.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Identify stochastic and risk environments, using probability distributions on the necessary skills to derive indicators.
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COURSE OUTCOMES	By the end of this module students will be able to: <ol style="list-style-type: none"> 1. Understand the fundamental concepts of probability 2. Compute probabilities of random events 3. Understand and use discrete random variables 4. Understand and use continuous random variables 5. Compute mathematical expectations 6. Compute variances 7. Understand and use important probability distributions
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TEXTBOOK	<ol style="list-style-type: none"> 1. Kara, İmdat, 2000, Olasılık (4. Bası), Bilim Teknik Yayınevi, İstanbul. 2. Maden, Selahattin, 2006, Olasılığa Giriş, Seçkin Yayıncılık, Ankara
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OTHER REFERENCES	<ol style="list-style-type: none"> 1. Hines, W: W. , Montgomery, D. C., 1990 Probability and Statistics in Engineering and Management Science; (3. bası), John Wiley & Sons, Inc., NewYork, 2. Montgomery, D.C., Runger, G.C., 2007, Applied Statistics and Probability for Engineers (4. bası), John Wiley & Sons, Inc., New
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	York. 3. Newbold, P. (Çev. Ü. ŞENESEN), 2000, İşletme ve İktisat için İstatistik, (1. bası), Literatür Yayınları, No:44, İstanbul, 4. Devore, J. L., 1987 Probability and Statistics for Engineering and the Sciences, (2. bası), Brooks/ColePublishing Co., Belmont, CA, 5. Standart Normal, Binom tables.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	General info about course and set theory
2	Counting techniques, permutations and combinations
3	The definition and the basic concepts and theorems of probability
4	Conditional probability, Bayes' rule, the concept of independence
5	The concept of random variables, probability functions
6	Mid-Term Examination 1
7	Expected value, variance, moments
8	Moments and moment generating functions
9	Cumulative distribution function and its properties
10	Important discrete and continuous distributions, and properties of it's
11	Mid-Term Examination 2
12	Normal distribution and its properties
13	The central limit theorem
14	Joint probability distributions
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151313247	COURSE NAME	Engineering Materials
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	2	3	4	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
25		25		50 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	45
				2 nd Mid-Term		1	
				Quiz			
				Homework			
				Project			
				Report			
				Others (Laboratory)		1	15
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Classification definitions of engineering materials, bonding, crystal structure, phase lines, and their mechanical properties of iron and steel alloys, polymers, ceramics, composites, corrosion, thermal and electrical properties of materials, information about.			
COURSE OBJECTIVES				Explain the need and importance of materials for industrial engineering knowledge, introducing all the features of materials, sample application areas. In the light of the information obtained from the student to recognize and control to make materials.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Mechanical properties of materials based on students to recognize and learn the methods of calculation.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Define the concept of engineering materials 2. Explain the selection of the user according to the fields of engineering materials 3. Calculating the mechanical properties of engineering materials depending on the given period 4. Depending on site conditions, a user can design a material 5. Assess the suitability of the material selected for the issue of a particular system 			
TEXTBOOK				Kınıkoğlu, N., 2001, Malzeme Bilimi ve Mühendisliği, Literatür Yayınları, İstanbul			
OTHER REFERENCES				<ol style="list-style-type: none"> 1. Van Vlack, L.H., 1989, Elements of Material Science and Engineering, Addison Wesley Publishing Company, New York. 2. Dieter, G.E., 1988, Mechanical Metallurgy, Mc Graw Hill Book Company, London. 			
TOOLS AND EQUIPMENTS REQUIRED				Laboratory			

COURSE SYLLABUS

WEEK	TOPICS
1	Materials and engineering, material types, industrial engineering and engineering materials
2	Atomic structure and bonding, crystal structures and crystal geometry
3	Mechanical properties of metals, tensile and hardness tests
4	Mechanical properties of metals, compression and torsion tests
5	Mechanical properties of metals, creep and fatigue tests
6	Mid-Term Examination 1
7	Phase diagrams, gibbs phase rule, lever rule (pure materials, binary eutectic compositions)
8	Engineering Alloys, iron and steel production
9	Unalloyed and low-alloy steels
10	Calculations on iron-carbon equilibrium diagram and the diagram
11	Mid-Term Examination 2
12	The overall heat treatment of steel materials
13	Aluminum alloys, copper alloys
14	Stainless steels, cast irons, metal material, selection of materials for engineering designs using
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		X	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		X	

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151313558	COURSE NAME	Fundamentals of Business
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
-		50		50 ()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework		1	20
				Project			
				Report			
				Others (.....)			
FINAL EXAM						1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Content of the course is as follows: Business, concept of business, functions of business, chronology of business, global transformation of economy and developments in business, advances in information technology, founding of business, a business and its aims and environment, success criteria of the business, efficiency of a business, risks of a business; merging of businesses.			
COURSE OBJECTIVES				The main aim of the course is to introduce fundamentals of business			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				As an economic unit, business, business types, and legal structures, feasibility studies, management functions.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Know business concept. 2. Know business functions. 3. Know production resources. 4. Understand economical facts. 5. Know chronology of business. 6. Know foundation works of a business. 7. Know about a business and its environment. 8. Understand aims of the business. 9. Understand success criteria of the business. 10. Know functions of the management. 11. Know the process of decision making. 			
TEXTBOOK				Mucuk, İ., 2005, Modern İşletmecilik, Türkmen Kitabevi, İstanbul, 406 sayfa. ISBN: 975- 7337- 55-2			
OTHER REFERENCES				Şahin M., 2005, Genel İşletme, A.Ü.İktisadi ve İdari Bilimler Fakültesi, Eskişehir. 280 sayfa.			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	Course scope, execution, evaluation, business description, with other disciplines, the development of business management, as an economic entity, business, business functions,
2	Business types
3	Legal aspects of business types
4	Business organization studies, feasibility study, business size, the criteria, the concept of capacity
5	Choice of place of business organization, management, management functions, management levels
6	Mid-Term Examination 1
7	Planning, organizing (organization theory, organizational structure and forms of shelving), orientation (executive), coordination and control
8	Production, production management, breakeven analysis, classification of production systems
9	Production planning and control, Gantt chart
10	PERT and CPM charts, stock control (retail version), marketing
11	Mid-Term Examination 2
12	Finance
13	Human resources
14	Public relations, AR-GE
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		X	

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151313559	COURSE NAME	Report Writing Technique
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
3	2	0	0	2	4	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
-		100		()			-
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project		1	30
				Report			
				Others (.....)			
FINAL EXAM						1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				The process of research and techniques, report writing techniques, determination of references, the process of collecting and interpreting of data, the use of research material, report writing and presentation rules,			
COURSE OBJECTIVES				The main aim of the course is to teach how to plan a research and to know how to write a report or scientific paper.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Industrial engineers work in many areas they are required to report and present. Appropriate and effective techniques of successful presentations, reports, at least as important as the work itself. This course teaches techniques for report preparation and presentation of knowledge in this area by providing engineers and industry to improve their work contributes to the success.			
COURSE OUTCOMES				Ability to communicate interpreting and writing			
TEXTBOOK				Seyidođlu, H., 2009, Bilimsel Arařtırma ve Yazma El Kitabı. Güzem Can, İstanbul			
OTHER REFERENCES				Sarıççek, İ., 2004, Rapor Yazma Tekniđi Ders Notları. Osmangazi Üniversitesi. Eskişehir			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS	
WEEK	TOPICS
1	The importance of writing the report, the basic concepts related to the course and the course is to introduce the form of committed
2	The purpose and scope of the report, the report preparation process, use of libraries, the Internet and electronic resources to research resources
3	Report, abstract, introduction and conclusion
4	Format of the report (page structure, paragraph order, the numbering of the pages, transfer and quotations, footnotes)
5	Bibliography and citation formats. Arrangement of the bibliography. Quoting criteria.
6	Mid-Term Examination 1
7	Sections of the report (front sections, main sections, the last sections) and content.
8	The report in MS Word format using the program
9	CV and petition writing
10	Presentation techniques
11	Mid-Term Examination 2
12	Project presentations
13	Project presentations
14	Project presentations
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



SEMESTER IV
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151012209	COURSE NAME	History of Turkish Revolution and Principles of Kemal Atatürk: II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	2	0	0	2	2	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
General Literature		Foreign Languages		Comparative Literature			Social Science
							x
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1st Mid-Term			
				2nd Mid-Term		1	40
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	60	
PREREQUIEITE(S)				None			
COURSE DESCRIPTION				The Description of the term “revolution”; major historical events in the Ottoman Empire to the end of World War I; a general overview of Mustafa Kemal’s life; certain associations and their activities; arrival of Mustafa Kemal to Samsun; the congresses, gathering of the last Ottoman Assembly and the proclamation of the “national oath”; opening of the Turkish Grand National Assembly; War of independence to the Victory of Sakarya; Victory of Sakarya; financial sources of the war of independence; grand counter-attack; Armistice of Mudanya; abolition of the Sultanate; Peace Conference of Lausanne.			
COURSE OBJECTIVES				To help the students to appreciate the hard conditions under which the war of independence, under the leadership of Mustafa Kemal, was fought and how an independent Turkish state was created.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				To underline the idea that the national unity based on the principle “peace in the country peace in the world” can only be achieved through political, economic and military progress.			
COURSE OUTCOMES				At the end of this course; Students 1.Explains Principles of Atatürk and main concepts related to Revolution history. 1.1.Explains the concepts of Reform/Revolution. 1.2.Describes the concept of National Forces. 1.3.Explains the concepts of Republic/Democracy. 1.4.Recognizes the concept of Ideology. 2.Explains the main points of the period related to Turkish War of			

	<p>Independence and foundation of the Turkish State.</p> <p>2.1.Explains the developments at Ottoman Empire before Turkish Revolution.</p> <p>2.2.Describes the World War I and its results.</p> <p>2.3.Explains Turkish War of Independence.</p> <p>2.4.Recognizes Turkish Revolution.</p> <p>2.5.Remembers the main principles of Turkish foreign politics.</p> <p>2.6.Explains Principles of Atatürk and their importance.</p> <p>3.Explains the effects of the developments at Europe and World on Turkish Republic.</p> <p>3.1.Explains the effects of European and World politics on Turkey and the results of them.</p> <p>3.2.Describes the effects of Capitalism/Imperialism on Turkey.</p> <p>3.3.Explains the relations / problems between Turkey and its neighbours.</p> <p>3.4.Explains the importance of Turkey at Europe and World.</p>
TEXTBOOK	Gazi Mustafa Kemal Atatürk, Nutuk (Söylev), C. I-II, TTK., Ank., 1986. İmparatorluktan Ulus Devlete Türk İnkılâp Tarihi, Cemil Öztürk (ed.), Ank., 2011.
OTHER REFERENCES	Niyazi Berkes, Türkiye’de Çağdaşlaşma, İstanbul, 1978. Enver Ziya Karal, Atatürk ve Devrim (Konferanslar ve Makaleler), TTK., Ank., 1980. Enver Ziya Karal, Atatürk’ten Düşünceler, MEB. Yay., Ankara, 1981. Bernard Lewis, Modern Türkiye’nin Doğuşu, Çev.M.Kıratlı, TTK., Ank., 1970. Ahmet Mumcu, Tarih Açısından Türk Devriminin Temelleri ve Gelişimi, Ank., 1976.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Mudanya Armistice Agreement.
2	Abolition of sultanate. Lausanne Treaty.
3	Declaration of Republic
4	Abolition of caliphate and lodges
5	Constitutional developments in Turkey. Internal and external political developments in the period of Atatürk's and İnönü's.
6	Mid-Term Examination 1
7	The political currents that effected Turkish revolution. Democratic law state.
8	The political currents that effected Turkish revolution. Democratic law state
9	Establishment of the Turkish law and educational system
10	Revolution movements in education, culture and health,
11	Mid-Term Examination 2
12	Nationalism, Etatism and Populism.
13	Secularism, Revolutionism
14	General evaluation.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X

4	Ability to develop, select and use modern methods and tools required for industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Instructor(s):

Signature:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE : 151314242	COURSE NAME Systems Analysis
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	3	0	0	3	5	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
	40		(60)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	30	
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project	1	30	
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)							
COURSE DESCRIPTION				System analysis and system approach, basic concepts, information systems, data flow diagrams, system flow diagrams, decision tree and decision table, the program flow diagram, entity relationship diagram, system test and evaluation, and drawings with MS Visio, Access database design.,			
COURSE OBJECTIVES				Examination of organizations by the general system approach, as well as the design of computer-based information systems			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				At the end of this course, students learn to examine organizations by the systems approach, and learn how to bring solutions to the problems with this approach. In addition, students will see how to design a management information system and design-related skills that they will acquire with the help of a project.			
COURSE OUTCOMES				1. in order to ensure the efficient use of resources, identifying problems in the existing method , developing alternative solutions and solving, 2. to prepare the team project within the same discipline as a group			
TEXTBOOK				Gökçen, H, 2002, Yönetim Bilgi Sistemleri, Pegem Yayıncılık, Ankara, 287 s			
OTHER REFERENCES				Kendall, K.E., Kendall, J.E., 1998, Systems Analysis and Design Fourth Ed., Prentice Hall, 902 p..			
TOOLS AND EQUIPMENTS REQUIRED				Lectures, problem presentation of projects, development of a model ,			

COURSE SYLLABUS

WEEK	TOPICS
1	Introduction to the concepts of system analysis and system approach
2	Important concepts of systems analysis, production and service systems
3	Decision-making process and information systems
4	Data flow diagram
5	Drawing by MS Visio 2002
6	Mid-Term Examination 1
7	Data dictionary, the system flow diagram
8	Decision tree, decision table
9	The program flow diagram, structured language
10	Entity relationship diagram and data base structure
11	Mid-Term Examination 2
12	The front system design, detailed system design
13	System test and evaluation
14	database design by MS Access 2002 , Project presentations
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE : 151314553	COURSE NAME Linear Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
4	3	0	0	3	4	COMPULSORY (x) ELECTIVE ()	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
10	55		(35)							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	20	
				2 nd Mid-Term				1	30	
				Quiz						
				Homework				1	10	
				Project						
				Report						
				Others (.....)						
FINAL EXAM					1	40				
PREREQUISITE(S)										
COURSE DESCRIPTION				The basic concepts of vector and matrix operations in linear spaces, decision problems, and modeling (parameter, the decision variables, constraints, objectives), graphical solution, the theoretical background of (convexity, basic optimal solution, etc.), simplex algorithm.						
COURSE OBJECTIVES				To teach the basic knowledge of linear mathematical systems , To learn how to establish mathematical models of the equivalent real life problems and to teach solution methods of these mathematical models by means of concepts of decision problem						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Industrial Engineers are faced with decision problems in many areas. These decisions often requires analyzing the particular system and involves predicting the future.. Making a decision for real life problems generally is difficult and impossible in many cases. Modeling of real life problems is a very important part of this course..						
COURSE OUTCOMES				1. To use theoretical knowledge of Mathematics, science, IE for modeling and solving problems in (PO.1) 2. Identification, modeling and solving of a complex IE problem (PO.2), 3. to use of related modern software (PO: 4).						
TEXTBOOK				Winston W.L., 1994, Operations Research: Applications and Algorithms (third ed.), Duxbury Press, 1317 p.						
OTHER REFERENCES				1. Kara İ., 2000, Doğrusal Programlama, Bilim Teknik Kitapevi, 270 s. 2. Taha H.A., 2000, Yöneylem Araştırması, (6.basımdan çeviri), Literatür, 910 s. 3. Kolman, B. (Çev: Ömer Akın), 2000, Uygulamalı Lineer Cebir, Palmiye yayıncılık.						
TOOLS AND EQUIPMENTS REQUIRED				Lecturesand related softwares						

COURSE SYLLABUS

WEEK	TOPICS
1	Systems of linear equations
2	Matrices
3	Matrix operations, determinants
4	Vectors and vector operations
5	Linear independence and rank of a matrix, Eigen values, Eigenvectors
6	Mid-Term Examination 1
7	A brief history of Operations Research, decision-making process and decision-making model, the basic concepts
8	Model concept and types of mathematical models
9	Mathematical models and analysis solutions, and final reports with LINGO
10	Graphic method, sensitivity analysis in graphic method
11	Mid-Term Examination 2
12	Analytical solutions, extreme point, and basic feasible solution
13	Simplex algorithm
14	The Big M Method, Two-Phase Simplex Algorithm
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			x
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			x
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	x		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	x		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	x		
9	Understanding of professional and ethical issues and taking responsibility	x		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	x		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	x		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: :

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151314555	COURSE NAME	Ergonomics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	2	2	0	3	5	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
10	20		(70)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	25	
				2 nd Mid-Term	1	25	
				Quiz			
				Homework	1	10	
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)							
COURSE DESCRIPTION				Description and objectives, energy requirements, fatigue and break, times environmental factors (climate, noise, vibration, lighting), display and control elements, applied anthropometry, ergonomics layout design, office layout, load lifting, working safety, workplace risk analysis.,			
COURSE OBJECTIVES				The main objective of the Course, is to introduce the methods to be aligned with people related to work place conditions , tools and equipment			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Workplace, tools, equipment factors and ensuring the alignment of human factors in the workplace, protection of human health and increase productivity.			
COURSE OUTCOMES				1, to identify problems in the workplace, develop alternative solutions in order to improve the physical conditions of the workplace.. 2. to design experiments for workplace conditions (noise, heat, dust, etc.), taking measurements, analyzing the results and interpretation 3. to gain ability to effectively work in team			
TEXTBOOK				Babalık, F., 2007, Mühendisler İçin Ergonomi, İkinci Baskı, Nobel Yayın Dağıtım Ltd.Şti., Ankara			
OTHER REFERENCES				Erkan, N., 2001, Ergonomi, 6.Baskı, MPM Yayın No:373, Ankara			
TOOLS AND EQUIPMENTS REQUIRED				Reading, comprehension and translation			

COURSE SYLLABUS

WEEK	TOPICS
1	Course scope, execution, evaluation definition of ergonomics, the importance of ergonomics, the classification of jobs
2	Energy requirement
3	Fatigue and Break times
4	The effects of environmental factors -Climate
5	The effects of environmental factors - Noise and Vibration
6	Mid-Term Examination 2
7	The effects of environmental factors - Lighting and other factors
8	Display and Control Elements
9	Applied Anthropometry
10	Ergonomic Workplace Arrangements
11	Mid-Term Examination 2
12	Work place arrangements in offices
13	Load Lifting methods
14	Working safety ,Risk Analysis in the workplace
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		x	
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: :

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151314554	COURSE NAME	Statistics I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	3	0	0	3	5	COMPULSORY (x) ELECTIVE (-)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
30		(60)	10

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	20
	2 nd Mid-Term	1	30
	Quiz		
	Homework	2	10
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	40

PREREQUISITE(S)	
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COURSE DESCRIPTION	Course content is as follows: basic statistical concepts, descriptive statistics, data collection methods, statistical analysis, the concept of sampling and sampling methods, sampling distributions, point estimation, confidence intervals, hypothesis testing, analysis of variances
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COURSE OBJECTIVES	The aim of this course is teach the basic concepts and methods of statistics, including the theoretical background and applications. In addition, to gain appropriate data collection and analysis techniques, skills..
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	to identify complex engineering problems related to industrial engineering, to gain information about the data collection, modeling and solving model, ability to select and apply appropriate analysis and modeling methods
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COURSE OUTCOMES	<ol style="list-style-type: none"> 1 Ability to apply knowledge in Natural sciences (Mathematics, Physics, Chemistry), 2. Compilation of the data, analyze and interpret data, 3. Development of Sampling knowledge, 4. Ability to establish and investigate the accuracy of hypothesis, 5. Ability to work in an interdisciplinary team and leadership, 6. Ability to apply statistical methods in various fields, 7. ability to use computers, computer software, as well as contemporary methods, techniques, tools, engineering design and analysis, 8. Understanding of professional and ethical responsibility, 9. Effective written and oral communication skills, 10. Understanding the importance of life-long learning and an ability to apply this
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TEXTBOOK	Montgomery D.C. & Runger G.C. (2007). Applied Statistics and Probability for Engineers, John Wiley&Sons.
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OTHER REFERENCES	Devore, J.L. (2004). Probability and Statistics for Engineering and the Sciences, Thomson. Hines, W. W. & Montgomery, D.C. (1990). Probability and Statistics in Engineering and Management Science, Wiley&Sons Ünver Ö. ve Gıngam, H.. (1986). Uygulamalı İstatistik Yöntemler, Ankara. Standard Normal, F, binomial distributions charts and tables;
TOOLS AND EQUIPMENTS REQUIRED	Projection and slides

COURSE SYLLABUS	
WEEK	TOPICS
1	The importance of statistics in engineering
2	Basic statistical concepts
3	Descriptive statistics
4	Data Collection Methods
5	Sampling and Sampling Distributions
6	Mid-Term Examination 1
7	Confidence Intervals
8	Basic Concepts of Hypothesis Testing
9	Hypothesis Testing: Population Mean
10	Hypothesis Testing: Population proportion and Variance
11	Mid-Term Examination 2
12	Hypothesis Testing: Two Population Means Difference
13	Hypothesis Testing: Two Population Proportions and Variances
14	Single Factor Analysis of Variance
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: :

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE : 151314556	COURSE NAME Technical English II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
4	2	0	0	2	3	COMPULSORY (x) ELECTIVE ()	English
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
	40		(40)			20	
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	40	
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	60	
PREREQUISITE(S)							
COURSE DESCRIPTION				to read technical articles more effectively, , comparison with Turkish sentence structure, be able to translate taking into account the elements of the sentence, The parallel between the problem solving process and translation, , explanation of some translation techniques, to examine certain paragraphs of books, periodicals and certain related engineering books			
COURSE OBJECTIVES				The main objective of the course is to remind English sentence structures and to gain experience and professional ability to translate texts.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Ability to communicate effectively verbally and in writing, ability to use the foreign language knowledge, access to information, science and technology developments in the foreign sources, monitoring and continuous self-renewal ability. without dictionary support the ability to understand technical texts in a reasonable time.			
COURSE OUTCOMES				1. Verbal and written communication skills 2. The ability to use a foreign language 3. Monitoring developments in technology and continuous self-development			
TEXTBOOK							
OTHER REFERENCES				1. Reader At Work I-II, METU Press, 1997 2. English texts in the field of Industrial Engineering 3. Dictionary (Turkish-English)			
TOOLS AND EQUIPMENTS REQUIRED				Reading, comprehension and translation			

COURSE SYLLABUS

WEEK	TOPICS
1	Reading vocational subjects texts, translation
2	Reading vocational subjects texts, translation
3	Reading vocational subjects texts, translation
4	Reading vocational subjects texts, translation
5	Reading vocational subjects texts, translation
6	Reading vocational subjects texts, translation
7	Reading vocational subjects texts, translation
8	Reading vocational subjects texts, translation
9	Reading vocational subjects texts, translation
10	Reading vocational subjects texts, translation
11	Mid-Term Examination 1
12	Reading vocational subjects texts, translation
13	Reading vocational subjects texts, translation
14	Reading vocational subjects texts, translation
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: :

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151314246	COURSE NAME	Thermodynamics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
4	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish			
COURSE CATAGORY										
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science			
20				(80)						
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	30	
				2 nd Mid-Term				1	30	
				Quiz						
				Homework						
				Project						
				Report						
				Others (.....)						
FINAL EXAM					1	40				
PREREQUISITE(S)										
COURSE DESCRIPTION				Basic concepts of thermodynamics the use of the property tables, ideal gas, equilibrium the first law of thermodynamics, open and closed systems, entropy , entropy Relations and the second law, heat exchangers, heat engine cycles, and refrigeration cycles						
COURSE OBJECTIVES				Learn the concepts: system, open and closed systems, multi-dimensional conceptual space, work, heat, internal energy, entropy, equilibrium the ideal upper limit, Learn even very complex systems can be based on a few simple principle, Learn to analyze energy transfer and transformation in systems using fundamental concepts of properties of materials, work, heat, internal energy, entropy, equilibrium, and relations Learn to Understand and knowledge of the concept of entropy						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				*Learn at least the most lower level information about analysis of engineering devices and systems such as piston-cylinders, compressors, turbines, pumps, heat exchangers, heat engine cycles, and refrigeration cycles using energy, materials, and entropy relations *Learn to use tables and charts •for Problem-solving *Learn to recognize• a useful approach to understanding production systems						
COURSE OUTCOMES				*To learn practical use of the system (open-closed), a multi-dimensional space, energy conservation, energy quality, entropy concepts *To gain awareness of the basis of engineering formation factors such as conservation of energy, law of thermodynamics, yield etc.						
TEXTBOOK				Çengel Y. A. ve Boles, M. A. , 2007, Mühendislik Yaklaşımıyla Termodinamik, Literatür Yayıncılık, İstanbul						

OTHER REFERENCES	Hill, P. G., Kenan, J. H., Moore, J. G., Keyes, F. G. , 1969, Steam Tables, John Wiley and Sons.
TOOLS AND EQUIPMENTS REQUIRED	Projection

COURSE SYLLABUS	
WEEK	TOPICS
1	Micro and macro perspectives, the transition from mechanics to thermodynamics, units,
2	Open and closed systems, the total energy and internal energy
3	Pseudo stability, case postulate, pressure, temperature and the Zeroth law of thermodynamics, and phase changes of pure substances,
4	Introduction of properties charts
5	Ideal gases, the use of tables
6	Mid-Term Examination 1
7	Heat transfer and boundary work
8	Introduction to the first law
9	Applications
10	First law and open systems
11	Mid-Term Examination 2
12	Applications of open systems
13	The applications of first law, the second law
14	Carnot cycle, irreversibility and the concept of entropy, yield
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		x	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by :

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151314247	COURSE NAME	Electrotechnic
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
4	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish			
COURSE CATAGORY										
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science			
50		50		()						
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	40	
				2 nd Mid-Term						
				Quiz						
				Homework						
				Project						
				Report						
				Others (.....)						
FINAL EXAM					1	60				
PREREQUISITE(S)										
COURSE DESCRIPTION				Electric current, voltage, power and energy concepts. Resistors and resources. Ohm's law. Kirchhoff's laws. Current and voltage measurement. Browse node voltages and currents analysis methods. Inductor and capacitor. Analysis of RL and RC circuits. Alternating current. Analysis of alternating current circuits, phasor method, the concept of impedance. Alternating current circuits, power calculation..						
COURSE OBJECTIVES				The main objective of course, to perform the analysis of electrical circuits. To learn concepts :current, voltage, power, energy, to learn. analysis of direct current circuits, alternating current circuits,. power calculations in alternating current circuits..						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Students can gain an understanding of basic electrical circuits which are encountered in daily life						
COURSE OUTCOMES				1.to calculate analyzes of current circuits and power 2.to calculate alternate current circuits and power						
TEXTBOOK				Uğur Arifoğlu, “Elektrik-Elektronik Devrelerin Temelleri I ve II” Alfa Yayınları						
OTHER REFERENCES										
TOOLS AND EQUIPMENTS REQUIRED				Lectures and problem solving						

COURSE SYLLABUS

WEEK	TOPICS
1	Introduction, current, voltage, power, energy concepts and units
2	Resistance, Ohm's law. Resources. Kirchhoff's Laws
3	Simple resistive circuits, Ohm's law and Kirchhoff's laws analysis.
4	The nodal analysis method for the direct current circuits.
5	The nodal analysis method for the direct current circuits.
6	Mid-Term Examination 1
7	The mesh current method for the direct current circuits.
8	The mesh current method for the direct current circuits
9	Inductor and Capacitor
10	Analysis of RL and RC circuits
11	Mid-Term Examination 2
12	Alternating current sources
13	Analysis of alternating current circuits using phasor
14	Power calculations in alternating current circuits
15,16	Final Exam

NO	PROGRAM OUTCOMES	1	2	3
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		x	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		x	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	x		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	x		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	x		
9	Understanding of professional and ethical issues and taking responsibility	x		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	x		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	x		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: :

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	Spring
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COURSE CODE	151314558	COURSE NAME	Work Physiology
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
IV	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
	20	30	50

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	Mid-Term	1
Quiz			
Homework		1	25
Project			
Report			
Others (.....)			
FINAL EXAM			1

PREREQUIEITE(S)

COURSE DESCRIPTION

Basic human physiologic functions; human cell, energy systems, muscle, nervous, respiratory, heart-circulation and metabolic functions
Physical activity and and fatigue
Effects of various workplace conditions (vibration, dust, temperature, noise,lighting) on human functions and their relationships with occupational diseases

COURSE OBJECTIVES

To teach effects of common work and workplaces on human functions and performance

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

Knowing the normal human functions and their adaptive limits, engineering students will be more precautions against accidents and occupational diseases in the workplace to protect human health and improve the efficiency of labor

COURSE OUTCOMES

1. To improve the physical conditions of the workplace, develop alternative solutions and solving.
2. Potential risks in the workplace, assessment and development of solutions to protect human health

TEXTBOOK

1. Lecture slides will be provided during lectures.
2. Yüksekokullar İçin Fizyoloji, Yazar: Prof. Dr. Berrak Ç. Yeğen
ISBN: 9789754112696
Baskı Tarihi: 2014, Nobel Tıp Kitapevleri, İstanbul.
3. Renkli Fizyoloji Atlası (2012), Çeviri Editörü: Prof. Dr. Zeynep SOLAKOĞLU, Nobel Tıp Kitapevleri, İstanbul.

OTHER REFERENCES

1. Kahya, E., 2014, İş Güvenliği, ESOĞÜ Yayın No :246, Eskişehir.
2. Yiğit, A., İş Güvenliği, 2013, Dora basım-Yayın Dağıtım Ltd. Şti, Bursa.
3. Bayır, M. ve Ergül, M., 2006, İş Güvenliği ve Risk Değerlendirme Uygulamaları, Bursa.

	4. Dizdar, E.N., 2008, İş Güvenliği, 4.Baskı, Murathan Yayınevi, Trabzon. 5. Esin, A., 2006, Yeni Mevzuatın Işığında İş Sağlığı ve Güvenliği, TMMOB MMO Yayın No:MMO/363/2, Ankara.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to work physiology, - the general organization of human body
2	The principal functions of human cells
3	Energy systems and basal metabolism
4	Gas exchange in the lungs and respiratory system
5	Heart and circulatory system, blood and body fluids
6	Nervous and muscle system functions
7	Workplace conditions related occupational diseases
8	Mid-Term Examination
9	Mid-Term Examination
10	Heat stress and body heat regulation mechanisms
11	Effects of the workplace environment on physical performance and fatigue
12	Ergonomics-anthropometry
13	Presentation of term assignments
14	Presentation of term assignments
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[x]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[x]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[x]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[x]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[x]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[x]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[x]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: Signature(s):

Date:



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER | **SPRING**

COURSE CODE	151314561	COURSE NAME	Effective Communication
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUA GE
4	2	0	0	2	3	Elective	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
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ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	Mid-Term	1
Quiz			
Homework		1	30
Project			
Report			
Others (.....)			
FINAL EXAM		1	40

PREREQUIEITE(S)

COURSE DESCRIPTION

Definition of interpersonal communication, communication model, communication components and characteristics, effective listening and feedback, obstacles in interpersonal communications (source, channel, receiver, etc.), factors facilitating communication, the role of emotions in communication and using emotions in communication, conflict in communication and conflict prevention, important issues in student, teacher and parent communication, communication applications.

COURSE OBJECTIVES

The purpose of this course is that make students comprehend interpersonal communication, recognize communication skills, realize the importance of effective listening and feedback, comprehend the role of facilitator and preventer factor in communication, realize the role of emotions in communication, comprehend conflict in communication and conflict resolution ways and communicate effectively.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

COURSE OUTCOMES

1. To know the definition of interpersonal communication
2. To comprehend communication elements and properties
3. To acquire the effective listening skills
4. To recognize preventer factors in interpersonal communication
5. To recognize facilitator factors in communication
6. To know the role of emotions in communication and use
7. To use effective communication skills

TEXTBOOK

Kaya, A. (2011). Kişilerarası etkili iletişim. Ankara: Pegem Akademi Yayıncılık.
Demiray, U. (2011). Etkili iletişim. Ankara: Pegem Akademi Yayıncılık.

OTHER REFERENCES

Ergin, A. ve Birol, C. (2000). Eğitimde İletişim. Ankara: Anı Yayıncılık.
Dökmen, Ü. (1995). Sanatta ve Günlük Yaşamda İletişim Çatışmaları

	ve Empati. İstanbul: Sistem Yayıncılık.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Definition of Communication and Basic Components
2	Communication Models
3	Effective Communication
4	Effective Communication Barriers and Facilitating Factors Effective Communication
5	Speaking and Listening
6	Types of Communication
7	Dimensions of Effective Communication in Educational Environments
8-9	MIDTERM EXAM
10	Teaching-Learning Process as a Communication Process
11	Factors that Constitute an Obstacle to Communication in the Classroom
12	Organizational Communication in Educational Institutions
13	Problem Solving Methods in Interpersonal Communication
14	Cognitive, Affective and Behavioral Processes in Effective Communication
15-16	

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[]
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[]	[X]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[X]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[X]	[]	[]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[]	[]
9	Understanding of professional and ethical issues and taking responsibility	[]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[]	[]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Instructor(s):

Date:

Signature:



SEMESTER V
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER FALL

COURSE CODE	151315410	COURSE NAME	Manufacturing Processes
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
30			70()				
ASSESSMENT CRITERIA							
MID-TERM		Evaluation Type		Quantity		%	
		1 st Mid-Term		1		20	
		2 nd Mid-Term		1		20	
		Quiz					
		Homework		1		10	
		Project					
		Report					
		Others (Examination of Factory)		2		10	
FINAL EXAM				1		40	
PREREQUIEITE(S)		-					
COURSE DESCRIPTION		Knowledge on materials, mechanical, heat, electrical, chemical and electrochemical methods, processes that cause changes at the mass of the materials and/or transformation-unifying processes-, choosing processes according to design.					
COURSE OBJECTIVES		Choose process to transform materials according to their design, determine the appropriate range for the parameters of the chosen process, evaluate the duration of the methods.					
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION		Chose manufacturing process according to the optimization principles.					
COURSE OUTCOMES		1. Learn basic knowledge for manufacturing methods.. 2. Learn parameters of traditional and modern manufacturing processes. 3. Evaluate durations of the manufacturing processes. 4. Consider the manufacturing capacity and sensitivity while designing. 5. Choose appropriate manufacturing process according to specified criteria for a part whose design is given.					
TEXTBOOK		Erol, D., Ulutas B., 2000, Endüstri Mühendisleri içim İmalat Süreçleri, Seçkin Yayıncılık.					
OTHER REFERENCES		1. Todd R.H., Allen D.K., Alting L., 1994, Manufacturing Processes Reference Guide, Industrial Press Inc., New York. 2. Kalpakjian S., Schmid S.R., 2006, Manufacturing Engineering and Technology, Pearson Education Inc., NJ.					
TOOLS AND EQUIPMENTS REQUIRED		Introduce processes that cause changes at the mass and transformation using slide shows and/or projection at the classroom. Make technical visits to factories. Make applications at the workshops of the university.					

COURSE SYLLABUS

WEEK	TOPICS
1	Review of materials Introduction to manufacturing processes
2	Casting processes Green sand casting-Cored sand casting-No bake mold casting-Shell mold casting-Investment casting-Permanent mold casting-Hot chamber casting-Cold chamber die casting-Plaster mold casting
3	Powder Processes Axial powder compaction-Isostatic powder compaction Deformation processes Forging-Cold heading-Upset forging-Swaging-Extrusion-Wire drawing
4	Deformation processes Tube drawing-Tube bending-Plate roll bending-Brake forming-Thread rolling-Shearing-Punching-Slitting-Conventional blanking-Fine blanking-Lancing
5	Deformation processes Nibbling-Nothcing-Perforating-Steel rule die blanking-Deep drawing-Progressive die drawing-Stretch draw forming-Progressive roll forming
6	Mid-Term Examination 1
7	Technical visit to a company Joining processes Shielded metal arc welding-Gas metal arc welding-Gas tungsten arc welding-Submerged arc welding-Spot welding-Projection welding-Laser beam welding-Plasma arc welding
8	Joining processes Electron beam welding-Gas torch braze-Furnace brazing-Metal bath dip soldering-Wave soldering-Adhesive bonding-Gas flame cutting-Laser beam cutting-Plasma arc cutting
9	Joining Processes Application Machining processes Reciprocating sawing-Band sawing-Circular sawing-Band filing-Reciprocating filing-Turning-facing-Parting-grooving-Lathe boring-Vertical boring
10	Machining processes Arbor milling-End milling-Horizontal boring-Jig boring-Precision boring-Drilling-Shaping/planning-Cylindrical grinding-Internal grinding-Surface grinding-Centerless grinding
11	Mid-Term Examination 2
12	Machining processes Thread cutting-Thread milling-Reaming-Tapping-Die threading-Gear milling-Gear hobbing-Gear shaping-Braoching-Honing-Lapping-Superfinishing-Routing-Abrasive jet machining-Vibratory finishing-Sand blasting
13	Plastic processing Injecting molding-Extrusion molding-Compression molding-Transfer molding-Blow molding-Rotational molding
14	Ceramics processing Composites processing: Filament molding Modern processes Cavity type electrical discharge machining-Electrical discharge wire cutting-Electrical discharge machining grinding-Electrochemical machining-Electrochemical grinding-Immersion chemical milling blanking-Photo etching
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		x	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			x
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315400		COURSE NAME	Operations Research I			
SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
35	10		55()				0
ASSESSMENT CRITERIA							
MID-TERM		Evaluation Type		Quantity		%	
		1 st Mid-Term		1		20	
		2 nd Mid-Term		1		30	
		Quiz					
		Homework		1		10	
		Project					
		Report					
		Others (.....)					
FINAL EXAM		Project		1		40	
PREREQUISITE(S)		Linear Systems					
COURSE DESCRIPTION		Sensitivity Analysis after optimum solution(structural and parametric) Composing simplex table with matrices, duality, the relationship between primal and dual models, transportation problems and the MODI method, assignment problems and the Hungarian method. Integer programming, branch and bound algorithm, Balas' additive algorithm, cutting plane algorithms.					
COURSE OBJECTIVES		Gain the ability of making analysis about which range the actual solution can be protected by examining the sensitivity of the model against the changes at the parameters of the decision models, teach duality and complementary of slackness theory, solution procedures of the specific linear decision models (transportation, transshipment and assignment), modeling with integer variables, the solution procedures of integer models.					
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION		To provide decision maker to predict the convenience of the actual solution to real problem by using the sensitivity analysis of decision model. In addition most of the industrial engineering problems require integer models.					
COURSE OUTCOMES		Modeling and solving of the industrial engineering problems by using the theoretical information about mathematics, science and industrial engineering (OC.1) Defining, modeling and solving an complex industrial engineering problem (OC.2), the ability of using modern software about operations research(PÇ:4)					
TEXTBOOK		Winston W.L., 1994, Operations Research: Applications and Algorithms (third ed.), Duxbury Press, 1317 p.					
OTHER REFERENCES		Kara İ., 2000, Doğrusal Programlama, Bilim Teknik Kitapevi, 270 s. Taha H.A., 2000, Yöneylem Araştırması, (6.basımdan çeviri), Literatür, 910 s.					
TOOLS AND EQUIPMENTS REQUIRED		Course description, usage of software					

COURSE SYLLABUS	
WEEK	TOPICS
1	Composing Simplex Table with Matrices
2	Sensitivity Analysis After Optimization
3	Duality
4	The Relationship Between Primal And Dual Model, Complementary Of Slackness Theory
5	Usage of software - LINGO
6	Mid-Term Examination 1
7	Transportation Problem, Finding Basic Feasible Solutions Approaches
8	MODI method for Transportation models
9	Transshipment Problem, Assignment Problem, Hungarian Algorithm
10	Integer Programming
11	Mid-Term Examination 2
12	Branch and Bound Algorithm
13	Binary Programming and Balas' Algorithm
14	Cutting Plane Algorithm
15	Graph Theory(Shortest path and Covering Tree)
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:
Signature(s):

Date:



**ESOGU Industrial Engineering Department
COURSE INFORMATION FORM**

SEMESTER	FALL
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COURSE CODE	151315401	COURSE NAME	Statistics II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
30				60()			10
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term		1	30
				Quiz			
				Homework		2	10
				Project			
				Report			
Others (.....)							
FINAL EXAM					1	40	
PREREQUISITE(S)				Statistics I			
COURSE DESCRIPTION				Chi-square distribution and applications, simple linear regression and correlation analysis, multiple regression analysis, non-linear regression analysis, defining model in multiple regression, multi-factor analysis of variance.			
COURSE OBJECTIVES				The aim of the course is to introduce students advanced topics in statistical approaches and area of usage.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Determine complex industrial engineering problems, collecting data for description of the problem, modeling, designing experiments, the ability of making experiments and solving; for that purpose the ability of selecting and applying the appropriate analyzing and modeling approaches.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. The ability of applying the information about basic science (mathematics, physics, chemistry) 2. The ability of analyzing, evaluating data and making and designing experiments. 3. Modeling the relationship between variables. 4. Researching the relationship in multivariate analysis 5. Researching the effect of multi-factor simultaneously. 6. The ability of studying with interdisciplinary team and leading to it. 7. The ability of applying statistical approaches to different areas. 8. The ability of using modern approaches, techniques and tools such as computer, software at engineering design and analysis. 9. The understanding of occupational and ethic responsibility. 10. The ability of effective written and oral communication. 11. Understand the importance of life-long learning and the ability of applying. 			
TEXTBOOK				Montgomery D.C. & Runger G.C. (2007). Applied Statistics and Probability for Engineers, John Wiley&Sons.			

OTHER REFERENCES	Devore, J.L. (2004). Probability and Statistics for Engineering and the Sciences, Thomson. Hines, W. W. & Montgomery, D.C. (1990). Probability and Statistics in Engineering and Management Science, Wiley&Sons Ünver Ö. ve Gamgam, H.. (1986). Uygulamalı İstatistik Yöntemler, Ankara. The probability tables of distributions such as standart Normal, F, and Binomial.
TOOLS AND EQUIPMENTS REQUIRED	Topics are given with appropriate examples, software (if it is required) and the contribution of students.

COURSE SYLLABUS	
WEEK	TOPICS
1	Chi-square Distribution
2	Tests of Chi-square
3	Testing for Goodness of Fit
4	Analysis of Regression
5	Analysis of Simple Regression
6	Mid-Term Examination 1
7	Analysis of Correlation
8	Analysis of Multiple Linear Regression
9	Analysis of Non-linear Regression
10	Analysis of Partial Correlation
11	Mid-Term Examination 2
12	Multi-factor Analysis of Variance
13	Two- factor Analysis of Variance
14	The Models of Two-factor Analysis of Variance
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315403	COURSE NAME	Work Study
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
10	20	70()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	25
	2 nd Mid-Term	1	25
	Quiz		
	Homework		
	Project	1	20
	Report		
	Others (.....)		
FINAL EXAM		1	30

PREREQUISITE(S)	-
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COURSE DESCRIPTION	Definition and historical development of work study, applications of method study and diagrams and schemata, principles of micro-motion study, techniques of work measurement, time study, applications of time study, work sampling, management of productivity, synthetic motion-time systems.
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COURSE OBJECTIVES	Gain the ability of determine best alternative by analyzing the current method and developing alternative methods with the aim of efficiently usage of sources such as labor, machines, materials, energy.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Teach how to use sources efficiently such as labor, machines, materials, energy efficiently at the manufacturing and service environments.
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COURSE OUTCOMES	<p>The ability of determining and describing the problems at the current method and developing alternative solutions and solving. Designing experiments for time study measurement, taking records, analyzing the results and interpreting</p> <p>The ability of working within a team to prepare a project at a company.</p> <p>The ability of communicating people from different disciplines during preparing the project.</p>
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TEXTBOOK	Kahya, E., 2009, İş Etüdü, ESOGU Endüstri Müh. Böl.,Eskişehir.
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OTHER REFERENCES	<ol style="list-style-type: none"> 1. Kanawaty, G.. (Çeviren : Z. Akal), 1997, <i>İş Etüdü</i>, Dördüncü (Düzeltilmiş) Basım, MPM Yayın No:29, Ankara. 2. Kurt, M. ve Dağdeviren, M., 2003, <i>İş Etüdü</i>, Gazi Kitabevi, Ankara.
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TOOLS AND EQUIPMENTS REQUIRED	Course description, examples about method enhancements, watch videos about workshops, applications of time study, presentations of projects.
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COURSE SYLLABUS	
WEEK	TOPICS
1	Scope of the course, execution, assessment, description, importance of work study, human factor, factors that composing the total time of the work.
2	The description and usage area of motion study, the methodology of motion study
3	Motion study- video (mechanic processes, metal removing processes) Motion study- video (enhancements)
4	Techniques that can be applied- schemata Micro-motion study, video (assembling)
5	Work measurement Time study- recurrent, rare, constant etc. elements
6	Mid-Term Examination 1
7	Time study- Evaluation of normal time, standard time
8	Time study- video (example of time study)
9	Evaluating standard time at machines that are fed automatically , video (automatic machines), and usage areas of time study.
10	Work Sampling
11	Mid-Term Examination 2
12	The measurement and controlling of performance
13	The measurement and controlling of performance
14	Synthetic motion-time systems (MTM-1)
15	Presentations of projects
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315404	COURSE NAME	Engineering Economics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
30	20	50()	0

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	25
	2 nd Mid-Term	1	25
	Quiz	2	20
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	30

PREREQUISITE(S)	-
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COURSE DESCRIPTION	The description and importance of engineering economy, compound interest, installment payments, basic assessment techniques, compare alternatives, break-even analysis, replacement investments, the effect of inflation on investments, and the effect of amortization and income tax on investment decisions.
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COURSE OBJECTIVES	Analyze problems that require investment such as purchasing a new machine and renewing, gain the ability of developing alternative approaches and choosing the best alternative among them.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Teach how to use the sources efficiently such as labor, machine, material, energy at manufacturing and service environments.
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COURSE OUTCOMES	<ol style="list-style-type: none"> 1. Provide knowledge on topics about industrial engineering. 2. Gain the ability of defining, describing, formulating and solving an investment problem. 3. Gain the ability of life-long learning by examining the effect of actual economic events on investment decisions.
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TEXTBOOK	Kahya, E., 2009, Mühendislik Ekonomisi, ESOGU Endüstri Müh. Bölümü, Eskişehir.
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OTHER REFERENCES	<p>Işık, A. 1999, Mühendislik Ekonomisi, Bizim Büro Basımevi, Ankara.</p> <p>White, J.A., Agee, M.H., Case, K.E., 1989, Principles Of Engineering Economic Analysis, Third Edition, John Wiley & Sons, Inc., Canada.</p>
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TOOLS AND EQUIPMENTS REQUIRED	Course description.
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COURSE SYLLABUS

WEEK	TOPICS
1	The scope and importance of the course, execution and assessment of the course. Series
2	Compound interest- Time value of the money, interest systems.
3	Compound Interest- Applications.
4	Installment Payments- Capital formation.
5	Installment Payments- Debt payment
6	Mid-Term Examination 1
7	Basic Assessment Techniques – Cash value, future value
8	Basic Assessment Techniques - Internal rate of return, profitability index, the repayment period
9	Comparing the Alternatives – Process
10	Comparing the Alternatives – Sensitivity Analysis
11	Mid-Term Examination 2
12	Break – Even Analysis
13	Replacement Investments
14	The Effect of Inflation on Investment Decisions
15	The Effect of Amortization and Income Tax on Investment Decisions.
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			x
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			x
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			x
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			x
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	x		
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315405	COURSE NAME	Service Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
5	2	0	0	2	3	COMPULSORY (X) ELECTIVE ()	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
25			75()							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	35	
				2 nd Mid-Term						
				Quiz						
				Homework						
				Project				1	20	
				Report						
				Others (.....)						
FINAL EXAM					1	45				
PREREQUISITE(S)				-						
COURSE DESCRIPTION				The description and the role of service systems in the economy, fundamentals and properties of service systems, facility location in service systems and relevant models, the efficacy analysis of service units(data envelopment analysis), demand forecast forservice systems, M/M/s queuing models and capacity planning.						
COURSE OBJECTIVES				Gain students the ability of analyzing, evaluating and improving service systems.						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				The analysis of service systems and modeling, making efficacy analysis and comparing, demand forecast of service systems and capacity planning.						
COURSE OUTCOMES				Learn the description and properties of service systems. Understand service systems and compare with manufacturing systems. Facility location for service systems(single and multiple) Learn and apply Data Envelopment Analysis The ability of making demand forecast for service systems Learn M/M/1queuing models that can be solved analytically. Determinate optimum service rate at M/M/1 model and optimum number of servers at M/M/s model.						
TEXTBOOK				Fitzsimmons J. A., Fitzsimmons M. J. (2008).Service Management, Sixth Edition, Irwin/McGraw-Hill.						
OTHER REFERENCES				1. Arapoğlu A. & Demirtaş E. A., (2009). Servis Sistemleri Ders Notları, ESOGU, Eskişehir. 2. Articles about topics and software (DEA Frontier)						
TOOLS AND EQUIPMENTS REQUIRED				Computer and projection for some of topics Course description and discussion						

COURSE SYLLABUS

WEEK	TOPICS
1	The role of service systems in the economy
2	The structure of service systems
3	Facility location for service systems
4	Facility location for service systems
5	Comparing services (DEA)
6	Comparing services
7	Demand forecast in service systems
8	Demand forecast in service systems
9	Probability theory and queue concept
10	Introduction to Queue models
11	Mid-Term Examination 2
12	M/M/1 queuing models
13	M/M/s queuing models
14	M/M/s queuing models and capacity planning at service systems
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		X	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315406	COURSE NAME	Information Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	2	0	0	2		COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20				80()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project		1	30
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Overview of information systems, information systems and components (database and user interface), the design of user interface, the design of faultless data entry procedure, the fundamentals of database design with MS Access, online database applications, object oriented system analysis with UML.			
COURSE OBJECTIVES				The aim of the course is to introduce fundamental information systems and techniques that can be used for developing an information system.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Provide knowledge on information systems designing techniques; teach database applications with MS Access and how to use UML at information systems design.			
COURSE OUTCOMES				Learn information systems and components Learn information system design techniques Design user interface Learn design of faultless data entry procedures Learn to design database with MS Access Learn object oriented system analysis and UML			
TEXTBOOK				Kendall, K. E., and Kendall, J. E., 2002, Systems Analysis and Design (fifth ed.), Prentice Hall, 914 p.			
OTHER REFERENCES				1. Satzinger, Jackson, Burd, 2002, System Analysis and Design (second ed.), Thomson Learning, 704 p. 2. Edin, İ., 2009, Nesne Odaklı Analiz ve Modelleme, Avcıol Basım Yayın, 147 s. 3. Enine Boyuna MS Access 2007.			
TOOLS AND EQUIPMENTS REQUIRED				Course description, examples, project presentation			

COURSE SYLLABUS

WEEK	TOPICS
1	Information Systems, kinds and components of Information systems
2	Diagrams sing to design of Information Systems (DFD,SFD)
3	Efficient design of input and output pages
4	The principles of designing database
5	Entity Relationship Diagram and Normalization
6	Mid-Term Examination 1
7	The basis of MS Access
8	Designing database with MS Access
9	Design of user interface
10	Designing the procedure of faultless data input
11	Mid-Term Examination 2
12	Object oriented system design
13	UML
14	Online database applications
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			x
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		x	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		x
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	x
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	x		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	x		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	x		
9	Understanding of professional and ethical issues and taking responsibility	x		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	x		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	x		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315407	COURSE NAME	Database Management Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
5	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science				
70			30()							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	50	
				2 nd Mid-Term						
				Quiz						
				Homework						
				Project						
				Report						
				Others (.....)						
FINAL EXAM					1	50				
PREREQUISITE(S)				-						
COURSE DESCRIPTION				Historical background of Database Management Systems(DBMS), why DBMS, file systems not, the advantages of DBMS, the relationship between DBMS and information systems, data definition and collection at DBMS, the relational model, abstracting levels at DBMS, data independence, queries at DBMS, treatment management, managing treatments simultaneously, uncompleted treatments and system crashes, the structure of an DBMS, unit relation diagrams, relational queries, structured query language (SQL), data storage and indexing, raid, management of free disk space, buffer management, files and indexes, page and record formats, optimization of queries, design and optimization of physical database, security, crash recovery, data mining.						
COURSE OBJECTIVES				Introduce basic concepts, methods and tools about Database Management Systems (DBMS) and teach designing and execution of these systems.						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Students can choose and manage DBMS which is a part of information systems (decision support systems, expert systems, management information systems) to solve complex problems met in professional life.						
COURSE OUTCOMES				Introduce, choose, construct and manage DBMS						
TEXTBOOK				Burma, Z.A., Veritabanı Yönetim Sistemleri, Seçkin Yayınevi, 2. baskı, 2009						
OTHER REFERENCES				Ramakrishnan, R., Gehrke, J., Database Management Systems, Mcgraw Hill Press, 3th edition, 2007 Hoffer, J. A., Prescott, M. B., McFadden, F. R., Modern Database Management, Prentice Hall Press, 8th ed., 2007 Beynon-Davies, P., Database Sytems, Palgrave McMillan Press, 3th edition, 2004						

TOOLS AND EQUIPMENTS REQUIRED	Projection and curtain Blackboard
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COURSE SYLLABUS	
WEEK	TOPICS
1	DBMS, basic concepts and technical terms
2	The relationship between DBMS and Information Systems
3	Data Models, Relational Model
4	Description and storage of data at DBMS
5	The structure and components of a DB.
6	Simultaneous Treatment Management
7	System Crashes and Recovery Algorithms
8	SQL and using MS SQL Server
9	Data Storage and Indexing
10	Free Disc Space and Buffer Management
11	Mid-Term Examination 2
12	Page and Record Formats
13	Design and Optimization of Physical Database
14	Database Security, basic concepts and properties of data mining.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			x
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		x	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	x		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			x
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			x
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			x
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			x
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151315408	COURSE NAME	Heuristic Algorithms
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
5	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
20			80()				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	25	
				2 nd Mid-Term	1	30	
				Quiz			
				Homework	1	10	
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	35	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				The examination and discussion of algorithmic components that can be met in the course while introducing and programming algorithm structures is targeted. Besides developing algorithms and pseudo codes to specific problems, composing data in Excel and VBA environment and making analysis and programming is examined to understand all phases of designing an algorithm. In addition the information about discrete structures which composes the basis of the algorithms is given at the introduction level of algorithm analysis.			
COURSE OBJECTIVES				Industrial engineers are concerned with the real life problems about developing and applying decision making methods. Most of these methods are examined at operations research course. In this course basic algorithm structures that are required for transferring some decision problems to computer environment are introduced and algorithmic components encountered during their examination and discussion of programming is described.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Algorithmic problem solving is one of the most important problem-solving methods in industrial engineering. The data processing, sort and search algorithms, network algorithms, divide-conquer approaches; matching algorithms and developing these algorithms with Excel VBA are introduced.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Learn data structures and sort-search algorithms. 2. Learn to use network algorithms for problem solving. 3. Learn the analysis of algorithms and the convergence properties. 4. Gain the ability of using Excel and VBA with this aim. 			
TEXTBOOK				T. Cormen, C. Leiserson, 2009, Introduction to Algorithms, MIT Press.			

OTHER REFERENCES	<ol style="list-style-type: none"> 1. Jeff Edmonds, 2008, How to Think about Algorithms, Cambridge University Press. 2. David M.Bourg, O'Reilly, 2006, Excel Scientific and Engineering Cookbook.
TOOLS AND EQUIPMENTS REQUIRED	Course description, software usage

COURSE SYLLABUS	
WEEK	TOPICS
1	Understand the role of algorithmic problem solving
2	Discrete mathematical structures, introduce the concepts of logic and theory
3	Learn data/information execution and analysis for the algorithms at the Excel environment.
4	Using excel functions as an algorithm component
5	Learn Sort-search algorithms
6	Mid-Term Examination 1
7	Learn network algorithms
8	Learn Divide and Conquer Algorithmic Approach
9	Learn algorithms about matrix operations and equation systems
10	Matching Algorithm Applications
11	Mid-Term Examination 2
12	Variables, loops, levels, procedures at programming with Excel
13	Programming algorithms at Excel
14	Combinatorial Optimization Problem Applications
15	The analysis of algorithms and the convergency properties
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):

SEMESTER VI



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316351	COURSE NAME	Operations Research II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
35		10		55 ()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term		1	30
				Quiz			
				Homework		1	10
				Project			
				Report			
				Others(Laboratory)			
FINAL EXAM				Written		1	40
PREREQUISITE(S)				Operations Research I			
COURSE DESCRIPTION				Provides fundamental knowledge about integer, nonlinear, dynamic programming and decision analysis models and solution techniques.			
COURSE OBJECTIVES				By the end of this module students will be able to: Learn fundamental concepts about non-linear structure in operations research. Understand and solving network problems. Lear nonlinear programming techniques. Use different integer variables in integer programming. Understand integer programming solution techniques. Understand dynamic programming. Understand decision making process. Multiple criteria decision making. Solve problem by using analytical hierarchy process.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Industrial Engineers face non-linear decision problems in many areas. In this case, solution methods of linear models may be partially or completely invalid. This course provides solution techniques for non-linear models and decision making approaches under uncertainty and risk.			
COURSE OUTCOMES				1.Using theoretical knowledge in mathematics, science and IE for modeling and solving IE problems. 2. Ability to use relevant modern software. 3. Information about applications of risk management.			
TEXTBOOK				Winston W.L., 1994, Operations Research: Applications and Algorithms (third ed.), Duxbury Press, 1317 p.			
OTHER REFERENCES				1. Kara, İ., 1986, Yöneylem Araştırması Doğrusal Olmayan Modeller, Bilim Teknik Kitapevi,			

	2. Taha H.A., 2000, Yöneylem Araştırması, (6.basımdan çeviri), Literatür, 910 s.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Non-Linear programming and differences from linear programming, basic concepts.
2	Gradient vector, Hessian Matrix, convexes, concepts of local and global optimum.
3	Single variable models, unconstrained and constrained structures.
4	Multivariable models, unconstrained structures.
5	Multivariable models, constrained structures.
6	Mid-Term Examination 1
7	Replacement method, Lagrange method.
8	Kuhn-Tucker Conditions.
9	Software practice-LINGO.
10	Basic concepts of dynamic programming.
11	Mid-Term Examination 2
12	Dynamic programming examples.
13	Decision making under risk.
14	Decision making under uncertainty.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316352	COURSE NAME	Quality Control
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
6	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish			
COURSE CATAGORY										
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science			
30				60 ()			10			
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	20	
				2 nd Mid-Term				1	30	
				Quiz						
				Homework				2	10	
				Project						
				Report						
Others(Laboratory)										
FINAL EXAM				Written		1	40			
PREREQUISITE(S)				Statistics I						
COURSE DESCRIPTION				The objective of the course is to teach students on the quality and its historical background, to get ability on the application of statistical process control techniques, and acceptance sampling plans by learning their theories. The aim is to provide students to gain skills about how to collect and analyze data for a production process, and make inferences about it.						
COURSE OBJECTIVES				<p>By the end of this module students will be able to:</p> <p>Apply knowledge of mathematics, science, and engineering</p> <ol style="list-style-type: none"> 1. Design and conduct experiments as well as to analyze and interpret data 2. Design a system, component, or process to meet desired needs 3. Work in the multi-disciplinary teams 4. Identify, formulate, and solve engineering problems 5. Understand professional and ethical responsibility 6. Communicate effectively 7. The broad education necessary to understand the impact of engineering solutions in a global and societal context 8. Recognize Total Quality Management, 9. Understand quality problems, to formulize and solve them, 10. Use statistical process control techniques in different areas, 11. Economic assessment of quality studies, 12. Apply acceptance sampling methods, 13. Use the necessary software in quality related problems, 14. Recognize the need for, and an ability to engage in life-long learning 15. Use contemporary issues 16. Gain financial analysis skills. 						

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	The course provides the ability to collect, analyze and interpret data via appropriate control charts for complex problems regarding quality control.
COURSE OUTCOMES	<ol style="list-style-type: none"> 1. Ability to apply knowledge of basic sciences. 2. Ability to analyze and interpret data. 3. Investigating the relationship between variables. 4. Understanding the reasons and severities of quality problems. 5. Ability to select and apply the appropriate control chart. 6. Ability to work in a interdisciplinary group and earning leadership skills 7. Ability to use such modern techniques and as computer and software for design and analysis of engineering. 8. Ability to use statistical process control techniques in different areas. 9. Understanding professional ethics 10. Effective verbal and written communication skills. 11. Recognize the need for, and an ability to engage in life-long learning.
TEXTBOOK	Montgomery D.C. (2005) : Introduction to Statistical Quality Control, John Wiley & Sons, Inc., NewYork,
OTHER REFERENCES	<p>Burnak, N. (1997) : Toplam Kalite Kontrolu : İstatistiksel Süreç Kontrolu, Osmangazi Üniv.,TEKAM yayın no:TS-97-008-NB, Eskişehir,</p> <p>Grant, E. L., Leavenworth, R. S. (1999) : Statistical Quality Control, McGraw-Hill, Inc. NewYork, Relevant tables for probability distributions.</p>
TOOLS AND EQUIPMENTS REQUIRED	Projector, blackboard.

COURSE SYLLABUS	
WEEK	TOPICS
1	Concept and evolution of quality
2	Total Quality Management
3	The economics of quality
4	Tools for identifying and solving problems.
5	Introduction to statistical process control
6	Mid-Term Examination 1
7	Inspection and specifications.
8	Control charts for qualitative measures; p,np
9	Control charts for qualitative measures; c,u
10	Control charts for quantitative measures; Variability
11	Mid-Term Examination 2
12	Control charts for quantitative measures; Average, units
13	Control charts for quantitative measures; Other important control charts
14	Process capability analysis.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316353	COURSE NAME	Production Planning I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
20	15		65 (√)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	20	
				2 nd Mid-Term	1	25	
				Quiz			
				Homework			
				Project	1	15	
				Report			
				Others(Laboratory)			
FINAL EXAM				Written	1	40	
PREREQUISITE(S)				Operations Research I			
COURSE DESCRIPTION				Teaching students the importance of planning, production planning, production program and detailed material planning to make them contribute to the economy as industrial engineers in the future.			
COURSE OBJECTIVES				<p>By the end of the course students will be able to learn the following subjects:</p> <ol style="list-style-type: none"> 1. Management and functions; the importance of planning in the management. 2. The general explanation of production planning 3. The goals and cost functions of production planning. 4. Production plans and their preparation methods. 5. Linear models in production planning. 6. Master production scheduling 7. Rough-cut capacity planning 8. Detailed material planning 9. Materials requirements planning 10. Capacity requirements planning 11. Input/output analysis 12. Related software 			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				The purpose of this course is to give the students ability on considering the importance of production planning.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Earning such abilities as detecting and describing problems of the current method, generating alternative solutions and solving the problems for efficient use of resources. 2. Ability to work in interdisciplinary groups by preparing a project for an enterprise. 			
TEXTBOOK				Vollmann, T.E., Berry, W.L. and Whybark, D.C. , Manufacturing Planning and Control Systems,1991.			

OTHER REFERENCES	
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Basic principles and importance of planning with management and functions.
2	Outline of production planning.
3	Objectives and cost components of production planning.
4	Production plan and methods of preparation (Tabulation).
5	Production plan and methods of preparation (Linear Models).
6	Mid-Term Examination 1
7	Preparation of production program.
8	Capacity planning framework.
9	Detailed material planning
10	Material requirements planning.
11	Mid-Term Examination 2
12	Capacity requirements planning.
13	Input/Output analysis.
14	Introducing production management software.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316354	COURSE NAME	Simulation
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20				70 (√)			10
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	30	
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project	1	30	
				Report			
				Others(Laboratory)			
FINAL EXAM				Written	1	40	
PREREQUISITE(S)				Statistics I			
COURSE DESCRIPTION				The objective of this course is to introduce simulation for manufacturing operations and service systems. In addition, use of ARENA software and SIMAN simulation language are going to be taught.			
COURSE OBJECTIVES				The students will learn how to program SIMAN, ARENA and ProModel, simulation languages. This course will provide a comprehensive coverage on system modeling, statistical theory, and programming skill that are essential for simulation. Main topics on statistical theory will be illustrated with modeling and simulation models. Students will gain simulating experience with Arena and Excel.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				The course provides basic concepts about system modeling, programming and statistics which are necessary for simulation analyses			
COURSE OUTCOMES				1. Earning such abilities as detecting and describing problems of the current method, generating alternative solutions and solving the problems for efficient use of resources. 2. Ability to design experiments for simulation models, analyze and interpret the results. 3. Ability to work effectively in a team by preparing a project for an enterprise.			
TEXTBOOK				Banks, J., Carson, J., Nelson, B., Nicol, D. , 2010, <i>Discrete-Event System Simulation</i> , 5th edition, PEARSON.			
OTHER REFERENCES				1. Kelton, W. David, Randall P. Sadowski, and David T. Sturrock, 2003, <i>Simulation with Arena</i> . McGraw-Hill Higher Education, Boston. 2. Law, Averill M. and Kelton, W. David., 2000, <i>Simulation Modeling and Analysis</i> . McGraw-Hill, New York.			

TOOLS AND EQUIPMENTS REQUIRED	Projector, computer, blackboard.
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COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to simulation and basic concepts.
2	Monte Carlo and Discrete Event Simulations.
3	Generating and examining random numbers.
4	Methods of generating random variables.
5	Introduction to ARENA simulation software and basic concepts.
6	Mid-Term Examination 1
7	Simulation modeling approaches.
8	Simulation of production systems.
9	Simulation of service systems.
10	Input data analysis.
11	Mid-Term Examination 2
12	Output data analysis. Finite and consistent state simulation.
13	Proofing and verifying of simulation models.
14	Examples for application areas of simulation.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316355	COURSE NAME	Production Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20				80 ()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework		5	25
				Project			
				Report			
				Others(Laboratory)		1	5
FINAL EXAM				Written		1	40
PREREQUISITE(S)							
COURSE DESCRIPTION				The main aim of the course is to introduce the position of production systems in production affairs, common structures in intermittent and serial production systems and measuring of the performance; general laws governing the production (like Little's Law) and their applications; cellular manufacturing systems (rationale behind them, applications, types); new trends (lean, agile, just in time, flexible production systems); introduction to production systems design.			
COURSE OBJECTIVES				By the end of this module students will be able to: <ol style="list-style-type: none"> 1.Comprehend of basic concepts, structures, laws and performance criteria related to production and production systems, 2.Understand of production line and line balancing concepts and training in line balancing techniques, 3.Gain the basic knowledge and experience for production systems simulation, 4.Get outfitted to design and run a production system, by learning and experimenting certain concepts and techniques 			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				<ol style="list-style-type: none"> 1. Introduction to terms, structures, evaluation measures and laws regarding production and especially manufacturing systems. 2.Introduction to material, information, value stream and cycling. 			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Understand of production line and line balancing concepts and training in line balancing techniques, 2. Gain the basic knowledge and experience for production systems simulation, 3. Get outfitted to design and run a production system, by learning and experimenting certain concepts and techniques 			
TEXTBOOK				İşlier A.,Attila, ÜRETİM SİSTEMLERİ: Kavramlar, Değerlendirme, Tasarım, OGÜ-MMF, 1998.			
OTHER REFERENCES				1. Askin R. G.ve Standrige C. R., 1993, Modeling and Analysis of Manufacturing Systems, John Wiley and Sons Inc			

	2. Hopp W. J. ve Spearman M. L., 1996, Factory Physics, Irwin
TOOLS AND EQUIPMENTS REQUIRED	Projector, blackboard.

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction (Concepts of product, production, organization, system, production laws),
2	Production function, input-cycle-output (discussion on details),
3	Production system, cycle and evaluation-efficiency-productivity,
4	Sub systems, breakeven analysis and consecutive-interactive decisions,
5	Batch type production, success measures in plants and practices,
6	Mid-Term Examination 1
7	Lean production techniques, agile and flexible production, CIM,
8	Production lines, Little's law and practices,
9	Manual and EXCEL simulation practices for a simple production system, other laws of production systems,
10	Automation and high volume production lines,
11	Mid-Term Examination 2
12	Breakdowns, approach of lower-upper bounds, lines with human and machine,
13	Effects of buffers, automatic assembly,
14	Production line and line balancing
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316356	COURSE NAME	Material Handling Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
25				75()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term			
				Quiz			
				Homework		1	20
				Project		1	20
				Report			
				Others(Laboratory)			
FINAL EXAM				Written		1	40
PREREQUISITE(S)							
COURSE DESCRIPTION				The course provides knowledge about material handling equipments, handling systems and principles, conveyors, AGV and lifter systems, special problems in material handling.			
COURSE OBJECTIVES				The main objective of this course is to provide basic concepts and techniques about material handling systems, the importance and benefits of these systems for efficiency and effectiveness. In addition the course informs the students about recent developments in the subject and makes students gain experience about solutions of the sample problems.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Understanding the fundamentals of material handling systems, introducing to main methods and techniques in this subject, adaptation of operations research concepts to material handling system analyses and solutions. Evaluating the new handling systems and recent developments in terms of efficiency and effectiveness in manufacturing systems. Analysis of sample case problems.			
COURSE OUTCOMES				1. Analysis of material handling systems and detection of current problems in the system. 2.Solution of material handling systems problems via modern techniques and tools. 3. Evaluation of current and recent material handling systems in service and manufacturing systems in terms of effectiveness, efficiency, economy, health and environment.			
TEXTBOOK				Tompkins J.A., White J.A., Bozer Y.A., Tanchoco J.M.A., 2010, Facilities Planning, 4th edition, John Wiley and Sons Inc.			
OTHER REFERENCES				Askin R.G., Standrige C.R., 1993, Modeling and Analysis of Manufacturing Systems, John Wiley and Sons Inc.			

TOOLS AND EQUIPMENTS REQUIRED	Projector, computer.
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COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to material handling systems, short history.
2	Aims of material handling, activities.
3	Principles of material handling.
4	Concept of unit load, pallet loading problem.
5	Features of material handling equipments.
6	Mid-Term Examination 1
7	Classification of material handling equipments.
8	Selection of material handling equipments.
9	Ergonomics and environmental impact in material handling.
10	Analysis of Conveyer Systems.
11	Mid-Term Examination 2
12	Analysis of lifter systems
13	Analysis of AGV and forklift systems.
14	Problems about material handling systems in manufacturing and service sectors.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151316358	COURSE NAME	Forecasting Methods
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
6	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
25			75()							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	35	
				2 nd Mid-Term						
				Quiz						
				Homework				1	20	
				Project						
				Report						
				Others(Laboratory)						
FINAL EXAM				Written		1	45			
PREREQUISITE(S)										
COURSE DESCRIPTION				This course is intended to provide knowledge about forecasting process, features of forecasting methods, selecting the appropriate method, discussion of qualitative and quantitative methods and analysis of forecasting accuracy using various measures.						
COURSE OBJECTIVES				The main objective of the course is to teach design of forecasting process for production and service systems, selecting the appropriate forecasting method, investigating the factors of method selection and various forecasting methods.						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Ability of making accurate predictions for capacity planning in production and service systems.						
COURSE OUTCOMES				1. Learning forecasting process. 2. Ability of selecting appropriate method for the structure of existing production/service system. 3. Ability of forecasting using the appropriate method. 4. Ability of analysis using various accuracy measures.						
TEXTBOOK				1.Kadılar, Cem, SPSS uygulamalı zaman serileri analizine giriş, Ezgi Kitapevi, Ankara, 2005. 2.R.G. Murdick, B. Render, R.S. Russell, “Service Operations Management”, Allyn and Bacon:USA, 1990. 3.J.H. Wilson, B. Keating, “Business Forecasting”, 2nd edition, IRWIN: USA, 1994.						
OTHER REFERENCES				Related Software (Minitab,SPSS etc.)						
TOOLS AND EQUIPMENTS REQUIRED				Projection, computer.						

COURSE SYLLABUS

WEEK	TOPICS
1	Forecasting and forecasting process
2	Forecasting and forecasting process
3	Selection of forecasting method
4	Factors of method selection
5	Factors of method selection
6	Mid-Term Examination 1
7	Decision based methods
8	Decision based methods
9	Causative methods
10	Causative methods
11	Mid-Term Examination 2
12	Time series methods
13	Time series methods
14	Comparison of methods by accuracy measures.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER SPRING

COURSE CODE	151316357	COURSE NAME	Efficiency Analysis
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
10	20		70()				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	25	
				2 nd Mid-Term	1	25	
				Quiz			
				Homework			
				Project	1	20	
				Report			
				Others(Laboratory)			
FINAL EXAM				Written	1	30	
PREREQUISITE(S)							
COURSE DESCRIPTION				The course is intended to provide knowledge about performance indicators in business, efficiency concept, factors of efficiency, efficiency types, models of efficiency measurement and evaluation, Kurosawa models and efficiency improvement techniques.			
COURSE OBJECTIVES				The main objective of the course is to provide knowledge about how to increase efficiency in business organizations by creating efficiency culture and introduce to models for measuring and controlling of efficiency.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Information of how to use machines and labor force more efficiently.			
COURSE OUTCOMES				1. Provides the knowledge of performance indicators. 2. Provides the basic principles for using resources efficiently. 3. Understanding the efficiency measurement and evaluation models and having ability to use them.			
TEXTBOOK				Akal, Z., İşletmelerde Performans Ölçüm ve Denetimi – Çok Yönlü Performans Göstergeleri, MPM Yayın No:473, Ankara, 2000.			
OTHER REFERENCES				1. Prokopenko, J., Verimlilik Yönetimi Uygulamalı El Kitabı, 4.Basım, (Çeviren:O.Baykal, N.Atalay ve E.Fidan), MPM Yayın No:476, Ankara, 2001. 2. Baş, M. ve ARTAR, İşletmelerde Verimlilik Denetimi Ölçme ve Değerlendirme Modelleri, MPM Yayın No:435, Ankara, 1991. 3. Köroğlu, K., İşletmelerde Verimlilik Ölçme-Değerlendirme Uygulamaları ve Rapor Sistemleri – Kurosawa Modeli, MPM Yayın No:571, Ankara, 1995.			
TOOLS AND EQUIPMENTS REQUIRED				Projection, blackboard.			

COURSE SYLLABUS

WEEK	TOPICS
1	Performance indicators in business organizations.
2	Measurement and control of efficiency.
3	Concept of efficiency.
4	Classification of efficiency models.
5	Kurosawa models
6	Mid-Term Examination 1
7	Total efficiency and measurement of profitability (AIPR system)
8	Labor force efficiency with ratios. (VPMR system)
9	Unstable structured hierarchical average labor force efficiency (HW LAP system)
10	Efficiency of added value.
11	Mid-Term Examination 2
12	Measurement and evaluation systems of total efficiency.
13	Models of total efficiency measurement.
14	Techniques to increase efficiency.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



SEMESTER VII
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317520	COURSE NAME	Facilities Planning
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
	20		80()				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	30	
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (class work)	1	30	
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Selection for factory location, factory arrangement and main location types, systematic arrangement, collection and analyzing of necessary data for factory arrangement, classification of activities, determination for amount of area, worker and fit out, material transfer, computer based facility arrangement, using mathematical models and new trends in facilities planning			
COURSE OBJECTIVES				Approach, criteria and techniques for facility location selection. Definition of material flow systems and giving information and experience to improve, design and refresh them			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				<ul style="list-style-type: none"> • To be grasped basic substructure of production and service systems • To do workshops for FP • To improve and use 3D models • To study in a teamwork, to analyze data and report them 			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Attribution to integrate the knowledge and experience that are came by the profession courses 2. Adaptation of OR concepts and tools to FP 3. Giving basic knowledge about preparation of final project, thesis, paper 4. Presentation of current trends like new management techniques and artificial intelligence 			
TEXTBOOK				A. Attila İŞLİER, 1997, Tesis Planlaması, Eskişehir Osmangazi Üniversitesi, Mühendislik-Mimarlık Fakültesi, Endüstri Mühendisliği Bölümü.			
OTHER REFERENCES				ERKUT H ve BASKAK M, 1997, TESİS PLANLAMASI, İrfan Yayıncılık. TOMPKINS/WHITE/BOZER/FRAZELLE/TANCHOCO/TREVINO, 1996, Facilities Planning, John Wiley & Sons, Inc.			

TOOLS AND EQUIPMENTS REQUIRED	Projection apparatus, green board, area for using LEGOs
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COURSE SYLLABUS	
WEEK	TOPICS
1	Definition of the course' studying plan and application bases
2	Basic senses (facility, location-distance measure, location selection, material flow, capacity and strategic planning)
3	Basic data for analysis and designing
4	Solution process (Problem, Problem solving, designing, planning and facility)
5	Location selection (facility location, multi tasking, single and multi facility location selection)
6	Mid-Term Examination 1
7	Other objectives in single facility problem, sensitivity and generalization of solution (warehouse location, location selection - allocation problems)
8	In facility location arrangement (basic settlement forms)
9	Systematic facility planning
10	Simple settlement techniques that could be done by hand
11	Mid-Term Examination 2
12	Special subjects in FP (warehouse and material problems, helper facilities, network methods, dynamic FP, simulation, artificial intelligence and fuzzy methods)
13	Special subjects in FP (cont.)
14	Final improvements, trends
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	X		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: r

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317629	COURSE NAME	Occupational Health and Safety I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
7	2	0	0	2	3	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
	20	30	50

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	Mid-Term		1
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

COURSE DESCRIPTION

Definition of occupational safety , occupational accidents, occupational diseases, occupational safety in workplaces, Risk assessment, Guards, Fire, the relevant legislation

COURSE OBJECTIVES

Teach the methods of prevention of occupational accidents and diseases in the workplace.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

Knowing the possible precautions against accidents and occupational diseases in the workplace to protect human health and improve the efficiency of labor

COURSE OUTCOMES

1. To improve the physical conditions of the workplace, develop alternative solutions and solving.
2. Design of the Workplace conditions (noise, heat, dust, etc.), taking measurements, analyzing the results and interpretation.
3. Potential risks in the workplace, assessment and development of solutions to protect human health

TEXTBOOK

4. Kahya, E., 2014, İş Güvenliği, ESOĞÜ Yayın No :246, Eskişehir.

OTHER REFERENCES

6. Yiğit, A., İş Güvenliği, 2013, Dora basım-Yayın Dağıtım Ltd. Şti, Bursa.
7. Bayır, M. ve Ergül, M., 2006, İş Güvenliği ve Risk Değerlendirme Uygulamaları, Bursa.
8. Dizdar, E.N., 2008, İş Güvenliği, 4.Baskı, Murathan Yayınevi, Trabzon.
9. Esin, A., 2006, Yeni Mevzuatın Işığında İş Sağlığı ve Güvenliği, TMMO MMO Yayın No:MMO/363/2, Ankara.

TOOLS AND EQUIPMENTS REQUIRED

COURSE SYLLABUS	
WEEK	TOPICS
1	Course scope, execution, evaluation Occupational Safety (defines, importance, etc.)
2	Occupational Safety Culture
3	Work Accidents
4	Work Accidents
5	Occupational diseases
6	Factors Affecting Business Environment
7	Basic security rules in workplaces.
8	Mid-Term Examination
9	Mid-Term Examination
10	Basic security rules in workplaces.
11	Risk Assessment
12	Protectors
13	Fire
14	Occupational Safety Law
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[x]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[x]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[x]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[x]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[x]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[x]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[x]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317521	COURSE NAME	Production Planning II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
7	4	0	0	4	6	COMPULSORY (X) ELECTIVE ()	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
10	20		70(√)							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	20	
				2 nd Mid-Term				1	25	
				Quiz						
				Homework						
				Project				1	15	
				Report						
				Others (.....)						
FINAL EXAM					1	40				
PREREQUISITE(S)				Production Planning I						
COURSE DESCRIPTION				Modeling, solving and doing application for decision making about material flow; production planning, production program, production scheduling and other inventory control models are discussed in this course.						
COURSE OBJECTIVES				The aim of this course is to teach how to supply materials for production, how to prepare production plan and program, how to improve inventory models and how to solve them.						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Plan, program, schedules and relationship between them, material flow system, inventory control systems and their types. Inventory control model under constraints, economic order model when there is price reduction. Single period stochastic inventory model and continuous review dynamic inventory control model. Assigning jobs to workshop, sequencing, scheduling problems; assigning and sequencing models. Project scheduling.						
COURSE OUTCOMES				Ability to detect and definite of problems in current method for provide efficient using of sources and improve alternative solutions Ability to study efficiently in a group work by doing application project in a factory						
TEXTBOOK				Johnson, L.A. and Montgomery, D.C., 1974, Operations Research in Production Planning, Scheduling, and Inventory Control, Wiley.						
OTHER REFERENCES				Sipper, D and Bulfin, R L Jr 1997, Production: Planning, Control, and Integration, McGraw-Hill						
TOOLS AND EQUIPMENTS REQUIRED										

COURSE SYLLABUS

WEEK	TOPICS
1	Introduction, talking about the course format, review of past courses about this subject
2	Definition of production planning, relationship between plan, program and schedules
3	Definition of material flow system, inventory control system and its' types
4	Continuous review inventory control models
5	Inventory control model under constraints; economic order model when there is price reduction
6	Mid-Term Examination 1
7	Single period stochastic inventory model and continuous review dynamic inventory control model
8	Overview of assigning jobs to workshop, sequencing, scheduling problems; assigning and sequencing models
9	Using linear model for assigning the jobs to the machines and transportation model
10	Scheduling problem types, n job 1 machine, solutions of n job 2 machines, n job 3 machines and 2 job m machines problems
11	Mid-Term Examination 2
12	Solution methods for due date based scheduling problems
13	Overview of JIT system
14	Maintenance planning, purchasing management
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		X	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317522	COURSE NAME	Systems Design
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
	20		80()							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	20	
				2 nd Mid-Term						
				Quiz						
				Homework						
				Project				1	30	
				Report						
				Others (.....)						
FINAL EXAM					1	50				
PREREQUISITE(S)				-						
COURSE DESCRIPTION										
COURSE OBJECTIVES				To give ability for using industrial engineering methods on a solution of real life						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				In a production or service system, under real constraints and conditions, determining and formulating a problem, designing a system or process, making experiments, data collection, analyzing, solving the problem by using modern techniques and information technologies						
COURSE OUTCOMES				1. Ability to determine, define and solve problems about industrial engineering 2. Ability to select and apply right analyses and modeling methods in solving industrial engineering problems 3. Ability to design a production/service/information system and/or a process under specific constraints and conditions 4. Ability to use the information technologies efficiently that are necessary for industrial engineering applications 5. Ability to study efficiently in a group work 6. Ability to prepare the work that is done as a research report and present the work by parol						
TEXTBOOK				Related materials						
OTHER REFERENCES										
TOOLS AND EQUIPMENTS REQUIRED										

COURSE SYLLABUS

WEEK	TOPICS
1	
2	
3	
4	
5	
6	Mid-Term Examination 1
7	
8	
9	
10	
11	Mid-Term Examination 2
12	
13	
14	
15-16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	X		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317523	COURSE NAME	Decision Support Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
10	40		50()				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	20	
				2 nd Mid-Term	1	20	
				Quiz	2	10	
				Homework			
				Project	1	15	
				Report			
				Others (.....)			
FINAL EXAM					1	35	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Decision maker, decision problems, data, status information, method information, basic subjects in decision support systems (DSS). Information, model and dialog, designing and development of data and model based decision support systems in Excel, Excel VBA as a DSS development platform. Characteristics of standard and programming. Solver, library functions, data management, data connections. Advantages about developing personal DSS			
COURSE OBJECTIVES				The aim of this course is to improve personal decision making processes by using Excel and VBA tools			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Not only does this course teach the decision support methods, it also teaches how to get information efficiently for making decision from corporate data or models and how to increase the quality of decision by adding their choices to decision. This course dwell upon how decision support systems for multi criteria problems are designed and programmed.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. Designing and improving DSS for a decision problem 2. Gaining ability to use Excel and VBA tools 3. Using DSS for multi criteria decisions 			
TEXTBOOK				Turban, E. J.Aronson, T.Liang, R.Sharda. (2008) Decision Support and Business Intelligence Systems. 8th edition.			
OTHER REFERENCES				Korkmaz, 2007, T. Excel Programlama-Tam Çözüm.			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	Introduction to DSS : Excel as an improving DSS environment
2	Decision, Modeling and support : Excel and Macros
3	Decision Support Systems: Overview: Excel and Macros
4	Model management in DSS : Excel and Solver Add-In
5	Model management in DSS: Excel Object Model and VBE
6	Mid-Term Examination 1
7	Model management in DSS: Visual Basic For Applications
8	Data management in DSS: studying with range objects
9	Data management in DSS: control logic, loop codes and user defined functions
10	User interface management in DSS : matrixes and variables
11	Mid-Term Examination 2
12	User interface management in DSS: user forms and databases
13	Creating a database: debugging, events and application development
14	Special points in improving Excel and DSS projects
15	The state of Excel and office technologies in DSS' future, other tendencies
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317525	COURSE NAME	Logistics Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
	20		60()			20	
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework		3	30
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				General information about Freight forwarder, the subjects of logistics management and supply chain management, basic forecasting methods, warehousing, distribution, customs clearance, insurance and product delivery methods, types of logistics problems, mathematical models and solution methods of logistics problems, determining of settlement, designing of logistics network, management and design of warehouse, vehicle loading problems, fleet management, vehicle routing problems			
COURSE OBJECTIVES				To give basic information on logistics management, to introduce problem types in logistics and solution methods			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				To teach necessary basic information for design and management of logistics and supply chain			
COURSE OUTCOMES				1. ability for understanding basic operations in logistics management and solving problems 2. ability for solving mathematical model and know-how to forecasting with using software that are MS Excel and Lingo 3. ability for studying with teammates by doing common homework 4. ability for designing report and presentation by doing homework			
TEXTBOOK				G. Ghiani, G. Laporte, R. Musmanno, 2003, Introduction to Logistics systems Planning and Control, Wiley, 377 p.			
OTHER REFERENCES				M. Çancı, M. Erdal, 2003, Lojistik Yönetimi, 235 s.			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	Freight forwarder, the subjects of logistics management and supply chain management
2	Logistics service components, services of warehousing, distribution
3	Customs clearance and insurance services, product delivery methods in foreign trade
4	Basic forecasting methods
5	Models for determining of settlement
6	Mid-Term Examination I
7	Designing of logistics network,
8	Design of warehouse
9	Management of warehouse
10	Vehicle loading problems
11	Fleet management
12	Crew scheduling
13	Long distance-vehicle routing problems
14	Short distance-vehicle routing problems
15-16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317624	COURSE NAME	Design of Experiments
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
10		10		80()			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz		4	20
				Homework			
				Project		1	15
				Report			
				Others (.....)			
FINAL EXAM					1	35	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Introduction to analysis of variance, single factor and multi factors analysis of variance, introduction to planning of experiments, the subject of experiment, types of experiments, determining of the number of experiments, full factorial designs, fractional factorial designs, Yates algorithm, Taguchi methods, the aid of computer analysis of experiments			
COURSE OBJECTIVES				Problem based designing of an experiments, its statistical analyses and interpretation			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				To be taught to select of the right method and techniques and how to do the experiments about a particular subject			
COURSE OUTCOMES				12. Ability to use the knowledge of basic sciences 13. To be able to analyze and considerate data, ability to do and design experiments 14. To be able work in a interdisciplinary team and ability to lead 15. Ability to characterize, formulate and solve the problems in related section 16. Ability to use software for engineering design and analyses 17. Understanding the professional and ethic amenability 18. Ability for effective communication			
TEXTBOOK				D.C. Montgomery, Design and Analysis of Experiments, 7th Ed., John Wiley&Sons, New York, 2009.			
OTHER REFERENCES				<ul style="list-style-type: none"> ▪ L. B. Barrentine, 1999, An Introduction to Design of Experiments, ASQ Quality Press. ▪ S.O Erbaş, H. Olmuş, 2005, Deney Düzenleri ve İstatistiksel Analizleri, Gazi Kitapevi, Ankara. ▪ M. Şırvancı, Kalite için Deney Tasarımı, 1997, “Taguçi Yaklaşımı”, Literatür Yayıncılık, Ankara. 			

TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to analysis of variance
2	Single factor analysis of variance
3	Multi factors analysis of variance
4	The models that are used in multi factors analysis of variance
5	Introduction to planning of experiments
6	The subject of experiment and strategies of experiments
7	Full factorial designs (2^k and 3^k)
8	Fractional factorial designs (2^{k-p} and 3^{k-p})
9	Determining of the repeat number and type of experiments
10	Yates algorithm
11	The steps for planning of experiments
12	Mid-Term Examination 1
13	Taguchi methods
14	Raw data – rates of signal/noise
15	Computer analyses
16-17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317524	COURSE NAME	Decision Analysis
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
	20		60				20
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type	Quantity	%	
				1 st Mid-Term	1	40	
				2 nd Mid-Term			
				Quiz			
				Homework	3	20	
				Project			
				Report			
				Others (.....)			
FINAL EXAM					1	40	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Basic subjects about decision theory, uncertainty, making decision under risk, Bayes decision process, decision tree, benefit theory, Markov chains, Markov decision process and making decision, game theory			
COURSE OBJECTIVES				To study making decision process and how to make decision with right method			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Specially, to teach basic techniques that are like the subjects about making decisions under risk, decision tree and Markov analysis			
COURSE OUTCOMES				1. classification of decision making problems that are seen under risk and uncertainty and ability to solve problems with right techniques 2. ability to do computations for techniques that are like decision tree with MS Excel, benefit theory and Markov analysis 3. ability to study with team-works 4. ability to design and present report for home works			
TEXTBOOK				Clemen R. T., 2004, Making Hard Decisions (3 rd , ed.), Wadsworth Publishing, 664 p. Hillier F. S., Lieberman G.J., 2010, Introduction to Operations Research (10 th ed.), Mc. Graw-Hill, 1045 p.			
OTHER REFERENCES				Wang, J. X., 2002, What Every Engineer Should Know About: Decision Making Under Uncertainty, Marcel Dekker Inc., 312 p.			
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS

WEEK	TOPICS
1	Classification of decision making problems and basic subjects
2	Decision making criteria under uncertainty
3	Decision making criteria under risk
4	Decision tree
5	Bayes decision process
6	Mid-Term Examination 1
7	Monte Carlo Simulation in the sequential decision making problems
8	Benefit theory
9	Basic subjects of Markov chains
10	Sample problems about Markov analysis
11	Mid-Term Examination 2
12	Markov decision process
13	Sample problems about Markov decision process
14	Game theory
15	Applications of game theory
16, 17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317620	COURSE NAME	Qualitative Decision Making
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
25		45		30			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	25
				2 nd Mid-Term			
				Quiz			
				Homework		1	20
				Project		1	25
				Report			
				Others (.....)			
FINAL EXAM					1	30	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Multi criteria decision problems, difficulties in solving, the solution methods of Multi criteria decision problems, analytic hierarchy and analytic network processes, Electre, Topsis etc., differences between of the methods			
COURSE OBJECTIVES				To discuss the subject of multi criteria in the decision problems, To show the solution methods			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Cognizance of methods and techniques and application skill for making decision is requirement for industrial engineers. In real life, the decision problems contain more conflicting criteria/objects than one. Also, some criteria could be qualitative and couldn't be denoted as numerical. Together with classical solution methods, learning methods that "could solve problems which have out of the common forms and characteristics "provide an extensive capacity of solving problem to industrial engineers.			
COURSE OUTCOMES				1. ability for using the methods for multi criteria decision problems 2. ability for solving the problems that contain non numeric factors 3. ability for learning and using software to solve multi criteria decision problems			
TEXTBOOK				Niteliksel Karar Verme Ders Notları, Müjgan Sağır, 2005			
OTHER REFERENCES				1. Saaty, T.L., (2000). Karar Vermenin Temelleri ve Analitik Hiyerarşi Süreci (Thomas L. Saaty), RWS Publication 2. Saaty, T. L., (2001). Geri bildirim ve Bağımlılıkla Karar Verme, Analitik Serim Süreci (Thomas L. Saaty), RWS Publication Saaty T.L., Özdemir, M.S., (2005), Encyclicon, RWS Publ.			

TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS	
WEEK	TOPICS
1	Decision problems, decision process, linear and nonlinear, discrete and continuous decision models
2	Multi criteria decision problems, qualitative factors, sample problems, difficulties in solving
3	Analytic Hierarchy Process (short introduction)
4	Binary comparison, the subject of consistency and inconsistency, homogeneity
5	Analytic Hierarchy Process
6	Mid-Term Examination 1
7	Solution of Analytic Hierarchy Process problems with Expert Choice, sensitivity analysis
8	Introduction to analytic network processes, dependence, internal-external dependence, the subjects of cluster and entity
9	Simple models (with single network), introduction to complex models
10	Complex models and the analysis of BOCR, strategic analysis
11	Mid-Term Examination 2
12	Discussion about term projects
13	The other the multi criteria methods (ELECTRE, TOPSIS)
14	Project presentations (individually)
15	Project presentations (cont.)
16, 17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317625	COURSE NAME	Stochastic Models
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF						
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE			
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish			
COURSE CATAGORY										
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science			
10	40		50()							
ASSESSMENT CRITERIA										
MID-TERM				Evaluation Type	Quantity	%				
				1 st Mid-Term				1	20	
				2 nd Mid-Term						
				Quiz						
				Homework				2	20	
				Project				1	20	
				Report						
				Others (.....)						
FINAL EXAM					1	40				
PREREQUISITE(S)				-						
COURSE DESCRIPTION				Repetition of some basic probability subjects, Markov chains and it's applications, finite/infinite Markov chains, random walk, sorting of the states, limit analysis of processes for long-term, the Poisson process, the processes of births and deaths, M/M/1 – queue model and extensions						
COURSE OBJECTIVES				To introduce stochastic models for undergraduate level to students, To improve skills of students for stochastic modeling						
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Understanding about what is stochastic processes and systems Getting capability about how to formulate and solve problems						
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. To be able to model of stochastic events/models 2. To be able to know and use qualified probability and qualified expectations 3. The subject of stochastic process 4. To be able to sort of the states in the Markov chains 5. To be able to understand discrete time - Markov chains, and to be able to solve problems, formulate models, understand Poisson process 						
TEXTBOOK				Taylor, H.M., Karlin, S., 1994, An Introduction to Stochastic Modeling. Academic Press Revised Edition.						
OTHER REFERENCES				Ross, S. M., 2007, Introduction to Probability Models, 9th Edition, Academic Press. Yates & Goodman, 1998, Probability and Stochastic Processes - A Friendly Introduction for Electrical and Computer Engineers, John Wiley & Sons.						
TOOLS AND EQUIPMENTS REQUIRED				For sometimes, a computer and a projection apparatus						

COURSE SYLLABUS

WEEK	TOPICS
1	Repetition of Poisson and Exponential distributions, (qualified) probability subjects
2	Stochastic processes and sorting of it, the subject of state
3	Discrete Markov chains and it's applications
4	Finite/infinite Markov chains - random walks
5	Sorting of the states
6	Mid-Term Examination 1
7	Limit analysis of processes for long-term
8	Average first crossing time
9	Absorbing states and probabilities of absorption
10	Poisson process
11	Mid-Term Examination 2
12	The processes of births and deaths
13	M/M/1 – queue model
14	M/M/1 – queue model and extensions
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	FALL
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COURSE CODE	151317627	COURSE NAME	Investment Analysis
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (X)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	40	(40)	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	20
	2 nd Mid-Term	1	30
	Quiz		
	Homework		
	Project	1	20
	Report		
	Others (.....)		
FINAL EXAM		1	30

PREREQUISITE(S)	-
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COURSE DESCRIPTION	Investment projects, project preparation, market analysis, technical analysis, financial analysis, application
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COURSE OBJECTIVES	Design of a product of production or service system, getting ability to implement stages of market analysis, technical analysis, financial analysis
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	To study how to prepare feasibility study of an investment
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COURSE OUTCOMES	<ol style="list-style-type: none"> 1. ability to design a new investment with all stages 2. to be able to use the knowledge about courses like Engineering Economics, Facilities Planning, Work Study 3. ability to prepare a feasibility study of a business 4. ability to communicate with people who have different disciplines in a project preparing time
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TEXTBOOK	Kahya, E., 2009, Yatırım Analizi, ESOGU Endüstri Müh. Bölümü, Eskişehir.
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OTHER REFERENCES	<ol style="list-style-type: none"> 1.TMMOB Makina Müh. Odası (2009), Yatırım Hizmetleri Yönetimi Mühendis Yetkilendirme Kurs Notları, Ankara. 2.Sarıaslan, H., 1997, Yatırım Projelerinin Hazırlanması ve Değerlendirilmesi, Turhan Kitabevi, Ankara. 3.Şahin, H., 1991, Yatırım Projeleri Analizi, Ezgi Kitabevi, Bursa
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS

WEEK	TOPICS
1	Scope of course, evaluation, investment projects
2	Preparing of investment projects
3	Market analysis – Consumer analysis
4	Market analysis – the analysis of competitive atmosphere
5	Market analysis – Demand forecasting
6	Mid-Term Examination 1
7	Technical analysis – Capacity determination, Organizational structure
8	Technical analysis – Company location selection
9	Technical analysis – Norm complement
10	Sample project presentation
11	Mid-Term Examination 2
12	Financial analysis – expenses of fixed capital investment
13	Financial analysis – Working capital
14	Financial analysis – expenses of one year period and economical analysis
15	Project presentations
16, 17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		X	
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



SEMESTER VIII
ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE 151318424	COURSE NAME Project Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	3	0	0	3	4	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]				Social Science
20			(80)				
ASSESSMENT CRITERIA							
MID-TERM		Evaluation Type		Quantity		%	
		1 st Mid-Term		1		30	
		2 nd Mid-Term					
		Quiz					
		Homework					
		Project		1		30	
		Report					
Others (.....)							
FINAL EXAM		Project		1		40	
PREREQUISITE(S)		-					
COURSE DESCRIPTION		Definition of project management, project organization types, preparation of the project manual hand book, Gantt charts, project layout format representation, CPM, PERT, cost analysis, resource scheduling, earned value analysis, project planning and monitoring with MS Project					
COURSE OBJECTIVES		Explanation of the concepts of project management, explaining how to prepare project handbook, how to plan a project with MS Project will be teach					
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION		In the case of production on the project at manufacturing and service enterprises, to teach how things scheduling					
COURSE OUTCOMES		1. Ability to scheduling and monitoring of the works in project type production environment 2. An ability to design and execute a project using MS Project software. 3. Work as a team on a real project and the ability to present 4. Working with different people and communication skills					
TEXTBOOK		K. Lockyer, J. Gordon, 1991, Critical Path Analysis 5.ed., Pitman Publishing, 244 p. C. Chatfield, T. Johnson, 2009, Adım Adım Microsoft Project 2007, Ankara, Arkadaş Yayınevi					
OTHER REFERENCES		C. F. Gray, E. W. Larson, 2000, Project Management, Mc Graw Hill, 496 p.					
TOOLS AND EQUIPMENTS REQUIRED		MS Project					

COURSE SYLLABUS

WEEK	TOPICS
1	The basic concepts of project management, project management phases
2	The project hand book preparation, the forms of organization of the project
3	Gantt chart and project planning, project layout representations
4	CPM (Critical Path Method), different priority relations between the Operations
5	PERT
6	Mid-Term Examination 1
7	MS Project training
8	MS Project training
9	Time cost analysis
10	Resource Scheduling
11	Mid-Term Examination 2
12	Earned value analysis
13	Project Presentations
14	Project Presentations
15	Project Presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318523	COURSE NAME	Creative Thinking and Entrepreneurship
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
10	20		(70)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	25
				2 nd Mid-Term			
				Quiz			
				Homework		2	35
				Project			
				Report			
				Others (.....)			
FINAL EXAM				Project		1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Basic knowledge on creativity and entrepreneurship, the importance of its transformation into social benefits, individual and group exercises in-class , new business idea development, geometric shapes, cardboard shapes, FRP, mind-development, case studies, activities, discussion of examples of innovative projects, individual term project work and presentations.			
COURSE OBJECTIVES				Trying to move away from dogma dogmatic thought, creativity, the ability of an individual to reveal the multi-faceted thinking habits, highlighting the drawbacks of entrepreneurship and entrepreneurial creativity, discuss the features that a good entrepreneur need to carry.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				Ability to think versatile and think away professional lives dogmas, estimate the parameters that may be needed in occupational life, analyze complex systems and / or events. In addition, entrepreneurship and creative thinking about the issues. All this information is supported by a detailed course term project, in addition in-class exercises are provided in each of the individual to produce an original project. Combining entrepreneurial experience in project generation and saves the original idea.			
COURSE OUTCOMES				1. Ability to think make inferences about events and systems with multi-faceted, and without prejudice and to speed on this issue - (exercises are measured) 2. Entrepreneurial personality, gaining skills in preoperative planning. 3. Systematic thinking skills (measured exercises) 4. Put out a product with the original Project (projects presented and exhibited in the classroom at the end of the period).			
TEXTBOOK				Creative Thinking, Problem Solving and Decision Making, RWS Publication, Saaty, T.L., 2000			

OTHER REFERENCES	Yaratıcı Düşünce Egzersizleri, John O’Keeffe, 191 sayfa, Arıtan Yayınevi, 2003. Adım Adım Girişimcilik, Rachelle Thackray, 202 sayfa, Elips Kitap, 2004. Yaratıcılık Fabrikası, Jack Foster, 140 sayfa, Optimist Yayınevi, 2001.
TOOLS AND EQUIPMENTS REQUIRED	Basic concepts discussion in the classroom, class exercises, case studies and discussions, brainstorming, creativity, FRP applications , project topics, and project presentations

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to Creativity and Entrepreneurship
2	Areas that creativity can take place, paradigm independence, social resistance
3	In-class exercises (geometric shapes with paper)
4	The idea of entrepreneurship and new business development debate
5	Important issues that should be considered in Entrepreneurship
6	Mid-Term Examination 1
7	Case studies, the importance of sample cases discussion
8	Case studies of classroom work
9	Different types of thinking, sinektik, morphological analysis, convergent and divergent thinking
10	In-class exercises (play and screenplay, FRP-fantastic role player)
11	Mid-Term Examination 2
12	Addressing term project topics, discussion
13	Term project issues, the discussion
14	Project presentations (each student prepares individual project and distributes)
15	Project Presentations (continued)
16,17	Final Exam(Project exhibition)

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER | **SPRING**

COURSE CODE	151318626	COURSE NAME	Occupational Health and Safety II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
8	3	0	0	3	4	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
	20	30	50

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	Mid-Term	1	50
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

COURSE DESCRIPTION

Occupational accidents, occupational safety in machines and workplaces, Risk assessment, the relevant legislation, labor law

COURSE OBJECTIVES

Teach the methods of prevention of occupational accidents and diseases in the workplace.

**ADDITIVE OF COURSE TO APPLY
PROFESSIONAL EDUATION**

Knowing the possible precautions against accidents and occupational diseases in the workplace to protect human health and improve the efficiency of labor

COURSE OUTCOMES

1. To improve the physical conditions of the workplace, develop alternative solutions and solving.
2. Design of the Workplace conditions (noise, heat, dust, etc.), taking measurements, analyzing the results and interpretation.
3. Potential risks in the workplace, assessment and development of solutions to protect human health

TEXTBOOK

Kahya, E., 2014, İş Güvenliği, ESOGÜ Yayın No :246, Eskişehir.

OTHER REFERENCES

Yiğit, A., İş Güvenliği, 2013, Dora basım-Yayın Dağıtım Ltd. Şti, Bursa.
Bayır, M. ve Ergül, M., 2006, İş Güvenliği ve Risk Değerlendirme Uygulamaları, Bursa.
Dızdar, E.N., 2008, İş Güvenliği, 4.Baskı, Murathan Yayınevi, Trabzon.
Esin, A., 2006, Yeni Mevzuatın Işığında İş Sağlığı ve Güvenliği, TMMO MMO Yayın No:MMO/363/2, Ankara.

TOOLS AND EQUIPMENTS REQUIRED

COURSE SYLLABUS	
WEEK	TOPICS
1	Course scope, execution, evaluation Occupational Safety (defines, importance, etc.)
2	Work Accidents
3	Workshops Occupational Safety - safety work of the machines
4	Workshops Occupational Safety - specific workshops
5	Risk Assessment
6	Action plans
7	OHS Management Systems
8	Mid-Term Examination
9	Mid-Term Examination
10	Related regulations
11	Related regulations
12	Labour Law
13	Labour Law
14	Labour Law
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	[]	[]	[x]
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[]	[x]
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[]	[]	[x]
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	[]	[]	[x]
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[]	[x]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[x]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[]	[x]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[x]	[]
9	Understanding of professional and ethical issues and taking responsibility	[x]	[]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[]	[x]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[x]	[]	[]

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318627	COURSE NAME	English Writing Techniques
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
50			()			50	
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework		2	10+10
				Project			
				Report			
Others (.....)							
FINAL EXAM						1	50
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Decision-making for career goals, job application process, English CV and cover letter preparation, Examination of letters written for a variety of purposes "Letter of Intent / Statement of Purpose", letters form, organization and editorial review, internet business / apply to graduate programs, job interview process.			
COURSE OBJECTIVES				For students of the department to choose a career, develop job search and job interview skills.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Students make decision for career goals, resume writing, job application and interview process, and so on. On the other hand will have the opportunity to use their skills and knowledge in English language.			
COURSE OUTCOMES				1. Reading jobs advertisements in English and comprehension 2. English resume writing 3. English cover letter writing 4. English "Letter of Intent / Statement of Purpose" letters to read and understand 5. To gain knowledge and experience in a job interview			
TEXTBOOK				Akar, N. Z., Özkan, Y., Tarhan Ş. "Language and Communication Skills After Graduation", METU Press, Ankara, 2005.			
OTHER REFERENCES				<ul style="list-style-type: none"> • Various Turkish - English and English - English Dictionaries • Internet resources (audio glossary and so on. Sites) 			
TOOLS AND EQUIPMENTS REQUIRED				Oral Presentation and discussion			

COURSE SYLLABUS

WEEK	TOPICS
1	Introduction, presentation of the course
2	Concepts of human resources
3	Concepts of human resources
4	Job Search Process
5	Examination of job advertisements in English
6	Mid-Term Examination 1
7	Examination of the English resume and cover writings
8	Examination of the English resume and cover writings
9	Examination of the English “Letter of Intent / Statement of Purpose”
10	Examination of the English “Letter of Intent / Statement of Purpose”
11	Mid-Term Examination 2
12	Job interview process
13	Job interview process
14	Job interview process
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department

COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318631	COURSE NAME	Strategic Planning
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
10	10	(60)	20

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term		1
2 nd Mid-Term		1	30
Quiz			
Homework		1	15
Project			
Report			
Others (.....)			
FINAL EXAM		1	35

PREREQUISITE(S)

-

COURSE DESCRIPTION

The basic concepts of strategic management and planning, Risk, the current situation and stakeholder analysis, SWOT Analysis, vision, Mission, the main objectives, strategies, determine the objectives and key performance indicators , Strategic Planning, monitoring strategic outcomes, evaluation and control of the laws and regulations on the subject.

COURSE OBJECTIVES

In the intense competitive environment, gain a strategic perspective and maintaining students' knowledge about competitive strategies to stay businesses stand, teach related laws and regulations and the ability to prepare a strategic plan.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

1. Ability to use resources effectively,
2. Learning Commercial values ,
3. Assessing the status of the entity,
4. Identification and evaluation of key performance outcomes,
5. Ability to evaluate the results of the strategic planning

COURSE OUTCOMES

1. Recognition of property and structures of the firms,
2. To learn the concepts of strategic management and planning,
3. Understand the laws and regulations on the subject,
4. Ability to prepare the strategic plan

TEXTBOOK

Ülgen, H. ve Mirze S. K. (2004). İşletmelerde Stratejik Yönetim. İstanbul: Literatür Yayıncılık.

OTHER REFERENCES

Nolan, T. M., Goodstein, L. D., Goodstein, J. (2008) : Applied Strategic Planning_An Introduction; John Wiley & Sons, Inc, Harrison, J. (2002). Strategic Management, New York: John Wiley & Sons, Inc.
Porter, M. (2000). Rekabet Stratejisi. İstanbul : Sistem Yayıncılık.
TMMOB Makina Müh. Odası (2008) : Stratejik Planlama Mühendis Yetkilendirme Kurs Notları, TMMOB Makina Müh. Odası, Ankara.

	DPT (2006) : Kamu İdareleri İçin Stratejik Planlama Kılavuzu (2. Sürüm), Devlet Planlama Teşkilatı, Ankara
TOOLS AND EQUIPMENTS REQUIRED	General description of the business, the stages of planning, strategic management and planning, understanding of the stages of preparation of the strategic plan, performance indicators, identification, disclosure of relevant laws and regulations, students' participation in the study

COURSE SYLLABUS	
WEEK	TOPICS
1	The general structure of the business
2	Management functions
3	Planning
4	Strategic management
5	Phases of strategic planning and strategic planning
6	Mid-Term Examination 1
7	Business and the environment (institutional) analysis
8	Internal and external environmental analysis
9	Corporate strategies
10	Structures and systems in enterprises
11	Mid-Term Examination 2
12	Decision-making and information systems in business
13	Related strategic planning laws and regulations
14	Related strategic planning laws and regulations
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	x		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	x		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility		x	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		x	

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318525	COURSE NAME	Financial Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
50		25		(25)			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework		1	10
				Project			
				Report			
Others (.....)							
FINAL EXAM						1	50
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Finance function in business and relationships with other business functions and the importance of financial management, financial resource types, supply routes, base financial risks, business partners, management and staff for the evaluation of these dimensions.			
COURSE OBJECTIVES				Teach financial requirements, employee, manager, and financial resources and understand the importance of the balance of supply and use.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				The light of information obtained from subjects identify financial management structures and financial markets, applied in business planning, performance evaluation, system design ways in which financial data use in such processes, and interpret this data.			
COURSE OUTCOMES				<ol style="list-style-type: none"> 1. The most favorable conditions for the provision of financial resources and identify problems for the efficiently use of this resources. 2. Ways to provide the necessary data for financial planning and modeling studies to reveal and interpret. 3. The ability to connect different terminologies (engineering, economics, finance) 4. The ability to understand engineering studies in the fields of the entity's financial structure of the concepts of business continuity and job security of the investment environment and its relationship with financial institutions 5. Awareness of the economic and social problems the fields of engineering decisions, financial risks. 			
TEXTBOOK				Ceylan, A. ve Korkmaz, T., 2009, Meslek Yüksekokulları İçin İşletmelerde Finansal Yönetim, Ekin Kitabevi, Bursa.			

OTHER REFERENCES	1. Akdoğan, N. ve Tenker, N., 2007, Finansal Tablolar ve Mali Analiz Teknikleri, Gazi Kitabevi, Ankara. 2.Korkmaz, T. ve Ceylan A., 2007, Sermaye Piyasası ve Menkul Değer Analizi, Ekin Kitabevi, Bursa.
TOOLS AND EQUIPMENTS REQUIRED	Lectures, case analysis, a short discussion on the current financial developments and economic data.

COURSE SYLLABUS	
WEEK	TOPICS
1	Finance Function and Historical Development
2	Principles of Finance and Financial Management Structures
3	Financial Markets and Financial Markets in Turkey
4	Basic Financial Instruments and Financial Risks
5	Basic Financial Statements and Users
6	Mid-Term Examination 1
7	Principles of Balance Sheet and Income Statement
8	Financial Statement Analysis Methods
9	Ratio Analysis
10	Comparative Financial Statement Analysis, Percentage Analysis, Trend Analysis
11	Mid-Term Examination 2
12	Break-Even Analysis
13	Leverage Analysis
14	Valuation of Shares
15	Valuation of bonds
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			X
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. **2:**Partially contribution. **3:** Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318526	COURSE NAME	Marketing Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
20	10		(70)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	40
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project			
				Report			
				Others (.....)			
FINAL EXAM						60	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Marketing and New Business, Marketing and New Economy Convergence, Customer Satisfaction, Customer Value and Market-Oriented Strategic Planning, Marketing, Information Systems, Marketing Environment, Consumer Markets and Buying Behavior, Corporate Markets and Corporate Purchasing Behavior, Market Segmentation, Target Market Selection Strategies , Positioning, Differentiation and Product Life-Cycle, New Global Market Presentations Development, Product & Brand Strategy, Price Strategies, Distribution Channel Management, Retailing, Wholesaling & Logistics Management, Integrated Marketing Communications, Promotion Efforts Management, Total Marketing Efforts Management.			
COURSE OBJECTIVES				To teach planning, organizing, implementation and supervision of the marketing strategies			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				increase the effectiveness of business strategies, development perspectives and ways of thinking that is related with the marketing and industrial engineering			
COURSE OUTCOMES				1. Gain the ability to analyze and develop new strategies of marketing 2. to be aware of the importance of interaction and interfaces of departments operating in the communication and marketing strategies 3. Ability to analyze environmental factors in developing a marketing strategy, 4. Conducting marketing research and the transfer of data to analyze and learn their marketing strategies.			
TEXTBOOK				Torlak vd., 2006, Modern Pazarlama, Değişim yayınları, İstanbul			

OTHER REFERENCES	İslamaoğlu A.H., 2006, Pazarlama Yönetimi, Beta yayınevi, İstanbul. Kotler, P., 2003, Marketing Management, Prentice Hall, USA
TOOLS AND EQUIPMENTS REQUIRED	Lectures, case analysis, and strategic approaches

COURSE SYLLABUS	
WEEK	TOPICS
1	Marketing and New Business, Marketing and New Economy Convergence, Customer Satisfaction, Customer Value and Market-Oriented Strategic Planning,
2	Marketing Information System
3	Marketing Environment and Consumer Markets and Buying Behavior
4	Corporate Markets and Corporate Purchasing Behavior
5	Market Segmentation, Target Market Selection Strategies, Positioning, Differentiation and Product Life-Cycle
6	Mid-Term Examination 1
7	Development of New Global Market Presentations
8	Product and Brand Strategy
9	Price Strategies
10	Distribution Channel Management
11	Mid-Term Examination 2
12	Retailing, Wholesaling and Logistics Management
13	Integrated Marketing Communications
14	Promotion Efforts Management
15	Total Marketing Efforts Management
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318527	COURSE NAME	Human Resource Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
75			(25)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	25
				2 nd Mid-Term		1	25
				Quiz			
				Homework		1	10
				Project			
				Report			
				Others (.....)			
FINAL EXAM						1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Human resource management, definition, importance, factors forcing change in HRM, Business Analysis, Employee recruitment and selection, training management and career development, business valuation process and methods, blue-collar job evaluation system design, performance evaluation process and methods, charge management, staff valuation system design			
COURSE OBJECTIVES				Explain the importance of Human Resource Management, labor motivation, give the ability to set up job evaluation and performance appraisal systems			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Gain the skills of how to set up valuation systems to in order to provide motivation and productivity of the labor skills			
COURSE OUTCOMES				1. Ability to set up a business and / or performance appraisal system 2. Gain ethics of the protection of human rights with business and performance appraisal system			
TEXTBOOK				Sabuncuoğlu, Z., 2000, İnsan Kaynakları Yönetimi, Ezgi Kitabevi, Bursa.			
OTHER REFERENCES				Kahya, E., 2002, İş Değerlemesi ve Ücret Sistemi, Ders Notları, ESOGU Endüstri Müh. Bölümü, Eskişehir. Kahya, E., 2002, Performans Değerlemesi, Ders Notları, ESOGU Endüstri Müh. Bölümü, Eskişehir.			
TOOLS AND EQUIPMENTS REQUIRED				Lectures, sample appraisal systems.			

COURSE SYLLABUS	
WEEK	TOPICS
1	Course scope, execution, evaluation Transition to the Human Resources Management (HRM)
2	Factors forcing change in HRM, HRM functions and the basic principles
3	Human Resources Planning
4	job analysis
5	Employee recruitment and selection,
6	Mid-Term Examination 1
7	Education management and career development
8	Business Valuation - Process and Methods of Education management and career development
9	Blue-collar job evaluation system
10	White-collar job evaluation system
11	Mid-Term Examination 2
12	Performance appraisal - Process and Methods
13	Blue-collar performance appraisal system
14	Salary management
15	The staff appraisal system design
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			X
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility		X	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318529	COURSE NAME	Industrial Scheduling
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20				(80)			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project		1	30
				Report			
				Others (.....)			
FINAL EXAM						1	40
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Scheduling terminology and notations, scheduling classifications, certain scheduling techniques, some of the procedures, scheduling of artificial intelligence, industrial scheduling applications.			
COURSE OBJECTIVES				Assignment of resources and scheduling of jobs in business, importance for the effective use of resources, giving scheduling techniques and procedures in the major identification of the scheduling problem, classification and skills to solve this problems.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				For the efficient use of resources in business, determine the which job would be better to assign machine and teach to use scheduling techniques			
COURSE OUTCOMES				1. The ability to determine the objectives and the constraints of the scheduling problems to ensure the efficient use of resources, such as machinery and labor 2. Ability to create solutions to defined scheduling problem with the help of existing methods or meta-heuristic 3. As a group present a scheduling problem solving, written and oral presentation and project preparation and ability to work effectively in teams			
TEXTBOOK				Sule D.R., 1997, Industrial Scheduling, PWS Publishing Company, ISBN: 0-534-95456-1			
OTHER REFERENCES				1. Pinedo M., 2002, Scheduling, Prentice Hall. New Jersey. ISBN: 0-13-028138-7. 2. Baker K.R., 1997, Sequencing and scheduling, ISBN 0-9639746-1-0			
TOOLS AND EQUIPMENTS REQUIRED				Lectures, sample problems, the project report.			

COURSE SYLLABUS	
WEEK	TOPICS
1	Course scope, execution, evaluation, the importance of the scheduling
2	What is Scheduling? The importance of scheduling, scheduling instances. Scheduling terms and definitions. Scheduling problem representation. Classification of scheduling problems. Single machine scheduling, dispatching rules and common solutions.
3	Backward-forward method and sample scheduling
4	Early and late delivery times, delivery time interval, determine the delivery time
5	Flow shop scheduling problems, Palmer method, Nawaz procedure, CDS procedure,
6	Parallel machine scheduling, batch scheduling
7	Assembly line balancing
8	Paving job shop scheduling approach, the procedure to remove the bottleneck
9	Workforce scheduling, TPB algorithm, BC algorithm
10	Workforce scheduling algorithm-Monroe
11	Mid-Term Examination 2
12	Meta-heuristic approaches for scheduling problems, examples
13	Simulated annealing and tabu search algorithm for scheduling problems
14	Project presentations
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		X	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			X
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	X		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		X	
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318530	COURSE NAME	Advanced Production Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
10	10	(80)	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
		1 st Mid-Term	1
	2 nd Mid-Term		
	Quiz		
	Homework	3	30
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	40

PREREQUISITE(S)

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COURSE DESCRIPTION

Flexible-Agile and Lean Production Systems, Group Technology and Cellular Manufacturing, Global Manufacturing, Just in Time Production, Flexible Material Handling Systems, Distributed Material Flow, Total Quality Management, Total Employee Involvement, Devolution, Set Time Acronym Programs, Concurrent Design, concepts and techniques, such as computer Integrated Design and Manufacturing.

COURSE OBJECTIVES

Highlight the differences between Traditional and Advanced Production Systems, introduce the concepts and techniques of advanced manufacturing systems, the transition from traditional production to advanced production requirements, facilities, and difficulties.

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION

Manufacturing and Production Systems, the recognition of advanced systems as a whole, to learn new technologies related to production, understands the importance of the new technologies and the benefits and challenges of them.

COURSE OUTCOMES

1. Recognition the structures and techniques of the advanced Production Systems
2. Gain a critical habit to dealt with production system
3. Opportunities and challenges faced in improving the Production System.

TEXTBOOK

İşlier A., A., , 1998, ÜRETİM SİSTEMLERİ: Kavramlar, Değerlendirme, Tasarım, OGÜ-MMF.

OTHER REFERENCES

Askin R. G., Standrige C. R., 1993, Modeling and Analysis of Manufacturing Systems, John Wiley & Sons Inc, USA.
Papers about subject.

TOOLS AND EQUIPMENTS REQUIRED

Computer and projection equipment

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to Manufacturing
2	Traditional Production Systems
3	Group Technology and Cellular Manufacturing Systems (CMS)
4	CMS and Flexible Manufacturing Systems (FMS)
5	FMS and Computer Integrated Design - Manufacturing
6	Agile Manufacturing Systems
7	Lean Manufacturing
8	Lean Manufacturing Techniques
9	Lean Manufacturing Techniques
10	Just In Time (JIT), Kanban, Visual Inspection
11	Mid-Term Examination 2
12	Flexible Material Handling Systems
13	Concurrent Design
14	Discussion of the period and Integration
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.			X
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			X
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			X
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			X
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		X	
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:

Date:

Signature(s):



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318528	COURSE NAME	Heuristic Methods
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (x)	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
10			(90)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	30
				2 nd Mid-Term		1	30
				Quiz			
				Homework		1	5
				Project			
				Report			
Others (.....)							
FINAL EXAM					1	35	
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Common heuristic methods, genetic algorithms, ant colony and tabu search, simulated annealing, group intelligence.			
COURSE OBJECTIVES				Heuristic methods used to express methods that finding often at or near Optimize solutions to specific problems with careful research and common sense. Heuristic Methods course, in the absence of analytical solution methods, provide methods how this problems can be solved using special methods. The goal of the course is the teaching algorithms that is finding widespread application in practice and that can be preferred to the other optimization methods. Importance of having an idea about these methods is increased day by day. Meta heuristic approaches are used extensively in the applications of industrial engineering.			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION				The importance of having basic knowledge and skills about these algorithms is increasing with each passing. Optimization problems in the 2000s, metaheuristics was used extensively. Course is intended to provide remedy this shortcoming.			
COURSE OUTCOMES				1. Modeling and solving a complex decision problem using heuristics 2. using modern software related to topic 3. Problem identification and development of specific solution methods			
TEXTBOOK				Cura, T. (2008) Modern Sezgisel Yöntemler ve Uygulamaları, Papatya Yayınevi			
OTHER REFERENCES				How to Solve it: Modern Heuristics, Z. Michalewicz ve D. Fogel, Springer 2004. Yapay Zeka Optimizasyon Algoritmaları, D. Karaboğa, Nobel Yayınevi 2004.			
TOOLS AND EQUIPMENTS REQUIRED				Lecture, the use of software			

COURSE SYLLABUS	
WEEK	TOPICS
1	Heuristic and algorithmic problem solving
2	Operations Research search algorithms
3	Divide-and-Conquer Based-approaches, and others,
4	Heuristic Methods in Operations Research
5	Greedy algorithms, nearest neighbor, CIH, CIH, Savings, and others
6	Mid-Term Examination 1
7	Random search algorithms
8	Foundations of meta-heuristic algorithms
9	Genetic / Evolutionary Algorithms
10	Ant Colony Optimization
11	Mid-Term Examination 2
12	Simulated Annealing
13	Tabu Search
14	Other heuristic methods: Artificial Neural Networks, social intelligence, artificial immune systems
15	Applications in combinatorial optimization problems, algorithms analysis and convergence properties
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	x		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.			
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by:
Signature(s):

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318607	COURSE NAME	Researches on Statistical Process Control
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318608	COURSE NAME	Researches on Production Planning and Inventory Control
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S) In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS

WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318609	COURSE NAME	Researches on Ergonomic Facility Layout
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318610	COURSE NAME	Researches on Location and Facility Layout
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS

WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318611	COURSE NAME	Researches on Analysis of Quality Problems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318612	COURSE NAME	Researches on Method Improvements
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318613	COURSE NAME	Researches on Operations Research Techniques
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS

WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318614	COURSE NAME	Researches on Industrial Enformatics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318615	COURSE NAME	Researches on Mathematical Programming Techniques
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	1 st Mid-Term	1
2 nd Mid-Term			
Quiz			
Homework			
Project		1	30
Report			
Others (.....)			
FINAL EXAM		1	50

PREREQUIEITE(S)	In the current or subsequent semester be completed courses and to be in case of graduate
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COURSE DESCRIPTION	
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COURSE OBJECTIVES	Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION	Skills to solving real life problems by defining a purpose in business.
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COURSE OUTCOMES	<ol style="list-style-type: none"> 1. Skills for Industrial Engineering problems related to the detection, identification and solving. 2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills. 3. The ability to design a product / service / information system and / or process design under certain constraints. 4. Ability to use programs effectively that is related to industrial engineering. 5. Ability to work effectively in multi-disciplinary teams. 6. Preparation of a research report and oral presentation skills to a group.
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TEXTBOOK	-
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OTHER REFERENCES	
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TOOLS AND EQUIPMENTS REQUIRED	Job-related books, periodicals and software
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COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318616	COURSE NAME	Researches on Management Information Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318617	COURSE NAME	Researches on Queue Models
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20		20		(60)			
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project		1	30
				Report			
Others (.....)							
FINAL EXAM						1	50
PREREQUIEITE(S)				In the current or subsequent semester be completed courses and to be in case of graduate			
COURSE DESCRIPTION							
COURSE OBJECTIVES				Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Skills to solving real life problems by defining a purpose in business.			
COURSE OUTCOMES				1. Skills for Industrial Engineering problems related to the detection, identification and solving. 2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills. 3. The ability to design a product / service / information system and / or process design under certain constraints. 4. Ability to use programs effectively that is related to industrial engineering. 5. Ability to work effectively in multi-disciplinary teams. 6. Preparation of a research report and oral presentation skills to a group.			
TEXTBOOK				-			
OTHER REFERENCES							
TOOLS AND EQUIPMENTS REQUIRED				Job-related books, periodicals and software			

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318618	COURSE NAME	Researches on Multi Objective Decision Making
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

-

OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS

WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318619	COURSE NAME	Researches on Supply Chain Management
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318620	COURSE NAME	Researches on Production Management and Operations
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science	
20	20		(60)				
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term			
				Quiz			
				Homework			
				Project		1	30
				Report			
Others (.....)							
FINAL EXAM						1	50
PREREQUIEITE(S)				In the current or subsequent semester be completed courses and to be in case of graduate			
COURSE DESCRIPTION							
COURSE OBJECTIVES				Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Skills to solving real life problems by defining a purpose in business.			
COURSE OUTCOMES				1. Skills for Industrial Engineering problems related to the detection, identification and solving. 2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills. 3. The ability to design a product / service / information system and / or process design under certain constraints. 4. Ability to use programs effectively that is related to industrial engineering. 5. Ability to work effectively in multi-disciplinary teams. 6. Preparation of a research report and oral presentation skills to a group.			
TEXTBOOK				-			
OTHER REFERENCES							
TOOLS AND EQUIPMENTS REQUIRED				Job-related books, periodicals and software			

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318621	COURSE NAME	Researches on Computer Aided Facility Planning
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

-

OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318622	COURSE NAME	Researches on Customer Focused Product and Process Design
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1 st Mid-Term	1	20
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)

In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES

Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK

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OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED

Job-related books, periodicals and software

COURSE SYLLABUS

WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department
COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318623	COURSE NAME	Researches on Analysis of Materials Handling and Warehouse Systems
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	1	4	0	3	6	COMPULSORY (x) ELECTIVE ()	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
20	20	(60)	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	1 st Mid-Term	1
2 nd Mid-Term			
Quiz			
Homework			
Project		1	30
Report			
Others (.....)			
FINAL EXAM		1	50

PREREQUIEITE(S) In the current or subsequent semester be completed courses and to be in case of graduate

COURSE DESCRIPTION

COURSE OBJECTIVES Industrial Engineering ability to identify, formulate and solve the problems of the systems, and develop design skills for a product / service / information systems

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION Skills to solving real life problems by defining a purpose in business.

COURSE OUTCOMES

1. Skills for Industrial Engineering problems related to the detection, identification and solving.
2. Industrial Engineering methods for the solution of problems select and apply appropriate analysis and modeling skills.
3. The ability to design a product / service / information system and / or process design under certain constraints.
4. Ability to use programs effectively that is related to industrial engineering.
5. Ability to work effectively in multi-disciplinary teams.
6. Preparation of a research report and oral presentation skills to a group.

TEXTBOOK -

OTHER REFERENCES

TOOLS AND EQUIPMENTS REQUIRED	Job-related books, periodicals and software
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COURSE SYLLABUS	
WEEK	TOPICS
1	A preliminary study to determine the scope of the project
2	Identification of the problems to be solved within the scope of the study
3	Analysis of the solution methods of the problems to be solved
4	Choosing the appropriate analysis and modeling methods
5	Under certain constraints and conditions, designing the model
6	Mid-Term Examination 1
7	A design of a production system / information system / service system
8	A design of a production system / information system / service system
9	A design of a production system / information system / service system
10	Interim report and presentation
11	Mid-Term Examination 2
12	Introduction the results of the application
13	Evaluation of the Design and implementation
14	Reporting of the study as a research
15	Project presentations
16,17	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.		x	
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	x		
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	x		
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		x	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		x	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		x	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	x		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.		x	
9	Understanding of professional and ethical issues and taking responsibility			x
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			x
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			x

1:None. **2:**Partially contribution. **3:** Completely contribution.

Prepared by: Faculty Members of the Department

Date:



ESOGU Industrial Engineering Department

COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318628	COURSE NAME	Lean Production
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Industrial Engineering [if it contains considerable design, mark with (√)]	Social Science
	10	90()	

ASSESSMENT CRITERIA

MID-TERM	Evaluation Type	Quantity	%
	1 st Mid-Term	1	50
	2 nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUISITE(S)

COURSE DESCRIPTION

The production and types of production, categorizing of production systems, computer aided production, the fundamentals of lean production idea, definition of lean production, historical development of lean production, basic principles and characteristics of it, definition and types of wasting, just in time, stockless production, lean production techniques, kanban and pull system, one-piece flow, balanced production, total job control, U-lines, job rotation, design of experiment, total productive maintenance, SMED (Single Minute Exchange of Dies), 5S rule, total quality management, Kaizen and quality circles, application of lean production philosophy in service systems

COURSE OBJECTIVES

To teach how to design and operate lean production systems by introducing basic subjects, techniques and methods about the systems to

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION

By learning philosophy of lean production, students can do applications in business life

COURSE OUTCOMES

Ability to define, formulate and solve problems about lean production

TEXTBOOK

Şen S., Yalın Üretim (Japon Modeli), Turhan Kitabevi, 209 sf., 2008

OTHER REFERENCES

Shingo. S., A Revolution in Manufacturing the SMED System, Productivity Press, Cambridge, MA, 1988
Güneş, Mustafa, (1999) , Tam Zamanında Üretim Ortamında Stok Kontrolü. Barış Yayınları, İzmir.
Ohno, Taichi., (1988), Toyota Production System : Beyond Large Scale Production, Productivity Press, Cambridge
Okamoto, K., (1989), Planning and Control of Maintenance Costs for Total Productive Maintenance, Productivity Press, Cambridge.
Okur. A.S., Yalın Üretim, 2000'li yıllara doğru Türkiye

	<p>sanayii için yapılanma modeli, 1997. Ross, D., (1992), Beyond the Toyota Production System; The Era of Lean Production, Manufacturing Strategy, Chapman Hall, London. Steudel. H.J, ve Desruelle. P., How to Become a Mean, Lean, World-Class Comperitor,1991. http://www.tpi-europe.ltd.uk/onepiece.htm, One-Piece Flow, 2000. http://www.cre8tivettraining.com/lean/lean-vs-mass.htm, Kitle Üretimi/Yalın Üretim Sisteminin Karşılaştırılması, 2000 http://www.qualitycoach.net/becominglean.htm, One-Piece Flow Manufacturing Overview, 2000.</p>
TOOLS AND EQUIPMENTS REQUIRED	Projection apparatus, green board

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to lean production systems
2	Basic subjects and technical terms about lean production systems
3	Historical development of lean production systems
4	basic principles and characteristics of lean production systems
5	Lean production techniques
6	Definition and types of wasting
7	Just in time, stockless production, kanban systems
8	Total productive maintenance
9	5S rule
10	SMED system
11	Mid-Term Examination 1
12	One-piece flow
13	Total quality management, Kaizen and quality circles
14	Applicability of lean production systems in service systems
15, 16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		X	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	X		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	X		
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	X		

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:



ESOGU Industrial Engineering Department COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	151318629	COURSE NAME	Acceptance Sampling
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	2	0	0	2	3	COMPULSORY () ELECTIVE (X)	Turkish
COURSE CATAGORY							
Basic Science		Basic Engineering		Industrial Engineering [if it contains considerable design, mark with (√)]			Social Science
20		40		30()			10
ASSESSMENT CRITERIA							
MID-TERM				Evaluation Type		Quantity	%
				1 st Mid-Term		1	20
				2 nd Mid-Term		1	30
				Quiz			
				Homework		1	15
				Project			
				Report			
				Others (.....)			
FINAL EXAM						1	35
PREREQUISITE(S)				-			
COURSE DESCRIPTION				Quality and its' development, quality economics, review for the subjects of sampling and sampling distributions, types of the acceptance sampling plans, operating characteristic curve, single sampling by attributes, double and multiple sampling by attributes, sequential sampling by attributes, variables sampling for process parameter, the standards about acceptance sampling			
COURSE OBJECTIVES				<ul style="list-style-type: none"> • To teach the applications of the plans for acceptance sampling by covering the development of the quality concept and contemporary total quality management • The students could adopt in principle quality concept and use related methods in their jobs. 			
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION				Beside quality concept, total quality management, quality economics, statistical process control, ability to implement the acceptance sampling and related techniques are added in.			
COURSE OUTCOMES				Ability to implement the knowledge about basic science Ability to analyze and evaluate the data Exploration for relationship between the variables Ability to study in an interdisciplinary and lead to them Ability to use statistical methods in different areas Ability to use computer, software, engineering equipments for designing and analyzing Understanding the professional and ethic responsibility Ability to communicate efficiently Ability to cover and use the life-long learning Ability for financial analyze			
TEXTBOOK				Schilling, Edward G. (1982): Acceptance Sampling in Quality Control, Marcel Dekker, Inc., New York			

OTHER REFERENCES	<ol style="list-style-type: none"> 1. Montgomery D.C. (2005) : Introduction to Statistical Quality Control, John Wiley & Sons, Inc., NewYork, 2. Grant, E. L., Leavenworth, R. S. (1999) : Statistical Quality Control, McGraw-Hill, Inc. NewYork, 3. TS 2756 and similar acceptance sampling standards, MIL-STD-105E
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	The quality concept and total quality management
2	Quality economics
3	Introduction to statistical process control
4	Acceptance sampling,
5	Controlling types and the transitions between types
6	Mid-Term Examination 1
7	Single instance acceptance plans(1) for qualitative criteria
8	Single instance acceptance plans(2) for qualitative criteria
9	Multi instance acceptance plans for qualitative criteria
10	Consecutive sample acceptance plans for qualitative criteria
11	Mid-Term Examination 2
12	Single instance acceptance plans(1) for quantitative criteria
13	Application of TS 2756 ve TS-EN-ISO coded standards
14	Other acceptance plans
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Industrial engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Industrial engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.			
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		X	
4	Ability to develop, select and use modern methods and tools required for Industrial engineering applications; ability to effective use of information technologies.	X		
5	In order to investigate Industrial engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.			
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			

1:None. 2:Partially contribution. 3: Completely contribution.

Prepared by:

Date:

Signature(s):