Evrak Tarih ve Sayısı: 12.12.2024-913707

MANİSA CELAL BAYAR ÜNİVERSİTESİ
MANİSA TEKNİK BİLİMLER MESLEK YÜKSEKOKULU
ELEKTRONİK VE OTOMASYON BÖLÜMÜ
MEKATRONİK PROGRAMI
2021 ÖĞRETİM PLANI

1. Sınıf 1. Yarıyıl							
Türkçe/İngilizce Dersin Kodu	**Türkçe Dersin Adı**	**İngilizce Dersin Adı**	**T**	**U**	**S**	**K**	**AKTS**
MTK 1101	Meslek Etiği	Professional Ethics	1	0	1	1	1
MTK 1113	Matematik 1	Mathematics 1	2	0	2	2	2
MTK 1111	Teknik ve Meslek Resmi	Technical and Profession Picture	3	1	4	4	6
MTK 1121	Mekanizmalar	Mechanisms	2	0	2	2	3
MTK 1131	Ölçme Tekniği	Measurement Technique	2	1	3	3	4
MTK 1161	Elektronik 1	Electronics 1	2	1	3	3	3
MTK 1171	Devre Analizi 1	Circuit Analysis 1	2	1	3	3	3
MTK 1181	Araştırma Yöntem ve Teknikleri	Research Methods and Techniques	2	0	2	2	3
MTK 1191	İş Sağlığı ve Güvenliği	Occupational Health and Safety	2	0	2	2	3
MTK 1003	**Seçmeli Dersler 1**	**Elective Courses 1**	**1**	**1**	**2**	**2**	**2**
MTK 1201	*Bilgi Teknolojileri*	Information Technologies	1	1	2	2	2
MTK 1211	*Kalite Yönetimi*	Quality Management	1	1	2	2	2
MTK 1221	*Ağ Sistemleri*	Network Systems	1	1	2	2	2
MTK 1231	*Gelişmiş Üretim Sistemleri*	Advanced Production Systems	1	1	2	2	2
MTK 1241	*İmalat İşlemleri*	Manufacturing Operations	1	1	2	2	2
MTK 1251	*Mekatroniğin Temelleri*	Basics of Mechatronics	1	1	2	2	2
MTK 1261	*Teknolojinin Bilimsel İlkeleri*	Scientific Principles of Technology	1	1	2	2	2
		Toplam	**19**	**5**	**24**	**24**	**30**

1. Sınıf 2. Yarıyıl							
Türkçe/İngilizce Dersin Kodu	**Türkçe Dersin Adı**	**İngilizce Dersin Adı**	**T**	**U**	**S**	**K**	**AKTS**
MTK 1102	Sosyal Sorumluluk	Social Responsibility	1	0	1	1	1
MTK 1114	Matematik 2	Mathematics 2	2	0	2	2	2
MTK 1112	Mikro Denetleyiciler	Micro Controllers	3	1	4	4	6
MTK 1132	Malzeme Teknolojisi	Material Technology	2	0	2	2	3
MTK 1152	Hidrolik - Pnömatik	Hydraulic - Pneumatic	3	1	4	4	6
MTK 1162	Elektronik 2	Electronics 2	2	1	3	3	3
MTK 1172	Devre Analizi 2	Circuit Analysis 2	2	1	3	3	3
MTK 1004	**Teknik Olmayan Seçmeli Dersler**	**Non-Technical Elective Courses**	**2**	**0**	**2**	**2**	**3**
MTK 1020	*Girişimcilik ve İşletme Yönetimi*	Entrepreneurship and Business Management	2	0	2	2	3
MTK 1022	*Mobil Uygulama Geliştirme*	Mobile Application Development	2	0	2	2	3
MTK 1024	*Teknoloji Yönetimi*	Technology Management	2	0	2	2	3
MTK 1026	*İnovasyon Yönetimi*	Innovation Management	2	0	2	2	3
MTK 1006	**Teknik Seçmeli Dersler 1**	**Technical Elective Courses 1**	**2**	**0**	**2**	**2**	**3**
MTK 1030	*İleri İmalat Yöntemleri*	Advanced Manufacturing Methods	2	0	2	2	3
MTK 1032	*Kontrol Sistemleri*	Control Systems	2	0	2	2	3
MTK 1034	*Enerji Yönetimi*	Energy Management	2	0	2	2	3
		Toplam	**19**	**4**	**23**	**23**	**30**

Doç. Dr. Mehmet AYVAZ
Bölüm Başkanı

MANİSA CELAL BAYAR ÜNİVERSİTESİ
MANİSA TEKNİK BİLİMLER MESLEK YÜKSEKOKULU
ELEKTRONİK VE OTOMASYON BÖLÜMÜ
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2021 ÖĞRETİM PLANI

2. Sınıf 3. Yarıyıl							
Türkçe/İngilizce Dersin Kodu	**Türkçe Dersin Adı**	**İngilizce Dersin Adı**	**T**	**U**	**S**	**K**	**AKTS**
MTK 2123	Elektrik Motorları	Electric Motors	2	1	3	3	4
MTK 2125	Sensörler ve Transdüserler	Sensors and Transducers	1	1	2	2	3
MTK 2121	Sayısal Kontrollü Tezgahlar	Numerical Controlled Stalls	1	1	2	2	3
MTK 2127	Bilgisayar Destekli Tasarım	Computer Aided Design	2	1	3	3	4
MTK 2141	Elektro-Mekanik Kumanda ve PLC	Electro-Mechanical Control and PLC	4	1	5	5	6
MTK 2151	Endüstriyel Robotlar	Industrial Robots	1	1	2	2	3
MTK 2161	Bilgisayar Programlama Teknolojileri	Computer Programming Technologies	2	1	3	3	4
MTK 2201	**Teknik Seçmeli Dersler 2**	**Technical Elective Courses 2**	**2**	**0**	**2**	**2**	**3**
MTK 2203	*Mesleki Yabancı Dil*	Professional Foreign Language	2	0	2	2	3
MTK 2213	*Makine Elemanları*	Machine Elements	2	0	2	2	3
MTK 2223	*Bilgisayar Destekli Elektronik Devre Tasarımı*	Computer Aided Electronic Circuit Design	2	0	2	2	3
MTK 2233	*Phyton Programlama*	Phyton Programming	2	0	2	2	3
MTK 2243	*Mekatronik Sistem Tasarımı*	Mechatronic System Design	2	0	2	2	3
		Toplam	15	7	22	22	30

2. Sınıf 4. Yarıyıl							
Türkçe/İngilizce Dersin Kodu	**Türkçe Dersin Adı**	**İngilizce Dersin Adı**	**T**	**U**	**S**	**K**	**AKTS**
MYO 2002	İşletmede Mesleki Eğitim	Vocational Training in Workplace	5	0	5	4	18
AİT 2102	Atatürk İlkeleri ve İnkılap Tarihi	Atatürk's Principles and History of Revolution	4	0	4	4	4
TDL 2102	Türk Dili	Turkish Language	4	0	4	4	4
YDI 2102	Yabancı Dil	Foreing Language	4	0	4	4	4
		Toplam	17	0	17	16	30
		Genel Toplam	70	16	86	85	120

T: Teori **U:** Uygulama **S:** Ders Saati **K:** Ulusal Kredi **AKTS:** Avrupa Kredi Transfer Sistemi

Doç. Dr. Mehmet AYVAZ
Bölüm Başkanı

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Professional Ethics		
Course Code	MTK 1101	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	1
Hours Per Week	1	ECTS	1
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

In this course students will learn ethical concept, ethical definition, moral development process, ethical rules, ethical systems, ethical relationship with society, ethical questioning, social corruption, professional ethics, ethics in business life, professional corruption.

The Aim of Course

Gain skills to the students, working in accordance with ethical rules in business life

Learning Outcomes

1. To be able to Having the knowledge and skills to provide suitable environment for work ethic at work
2. To be able to develop positive ideas about the concept of ethics
3. To be able to understand the principles of occupational ethics
4. To be able to Working in accordance with the work ethics required by the profession in the workplace environment

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Course Content

Week	Topic	Content
Week 1	Theoretical	Definition of ethics
	Practice	
	Laboratory	
Week 2	Theoretical	Moral Development process
	Practice	
	Laboratory	
Week 3	Theoretical	Ethical rules
	Practice	
	Laboratory	
Week 4	Theoretical	Ethical systems:Intended result EticRule of ethics
	Practice	

	Laboratory	
Week 5	Theoretical	Ethical systems:Social contract ethicsPersonal EthicsSocial life ethic
	Practice	
	Laboratory	
Week 6	Theoretical	Relationship between ethic and society
	Practice	
	Laboratory	
Week 7	Theoretical	Consequences of acting in accordance with Ethical Values
	Practice	
	Laboratory	
Week 8	Theoretical	Ethical questioning
	Practice	
	Laboratory	
Week 9	Theoretical	Social corruption and varieties
	Practice	
	Laboratory	
Week 10	Theoretical	The concept of professional ethics
	Practice	
	Laboratory	
Week 11	Theoretical	Professional Ethics Principles:AccuracylegalityReliabilityCommitment to the Job
	Practice	
	Laboratory	
Week 12	Theoretical	Ethical and non-ethical issues in business life
	Practice	
	Laboratory	
Week 13	Theoretical	Professional Corruption
	Practice	
	Laboratory	
Week 14	Theoretical	Consequences of appropriate behaviors in Work Ethics
	Practice	
	Laboratory	
Week 15	Theoretical	
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	5	0	0	5	5	0	0	0	0	0
OC2	0	0	0	0	5	0	0	5	5	0	0	0	0	0
OC3	0	0	0	0	5	0	0	5	5	0	0	0	0	0
OC4	0	0	0	0	5	0	0	5	5	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Mathematics 1		
Course Code	MTK 1113	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The concept of algebraConcept and operations of polynomials by polynomials Concepts and applications of ratio and proportionThe concept of the equationThe concept of inequalityThe relevant features and usage of symbol of summation and the symbol of production, Basic geometryBasic trigonometryThe basic operations of Functions

The Aim of Course

In this course, students will gain to apply the necessary knowledge and skills in mathematics for their profession's qualification

Learning Outcomes

1. To be able to the algebraic applications in their profession
2. To be able to equations and inequalities applications in their profession
3. To be able to applications of arrays in their profession
4. To be able to applications of functions in their profession
5. To be able to Use Basic Mathematical Knowledge in the Job

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Calculus, Howard Anton, Irl C. Bivens, Stephen Davis, Wiley

Course Content

Week	Topic	Content
Week 1	Theoretical	The concept of algebra
	Practice	
	Laboratory	
Week 2	Theoretical	Concept of polynomials and their operations
	Practice	
	Laboratory	
Week 3	Theoretical	Concepts and applications of ratio and proportion
	Practice	
	Laboratory	
	Theoretical	The concept of the equation

Week 4	Practice	
	Laboratory	
Week 5	Theoretical	The concept of inequality
	Practice	
	Laboratory	
Week 6	Theoretical	Summation symbol and production symbol
	Practice	
	Laboratory	
Week 7	Theoretical	arrays , finite arrays, constant arrays, equality of arrays and their operations
	Practice	
	Laboratory	
Week 8	Theoretical	arithmetic arrays, geometric arrays and infinite geometric
	Practice	
	Laboratory	
Week 9	Theoretical	midterm
	Practice	
	Laboratory	
Week 10	Theoretical	geometric objectsCoordinate systems
	Practice	
	Laboratory	
Week 11	Theoretical	Basic trigonometry
	Practice	
	Laboratory	
Week 12	Theoretical	trigonometric functions
	Practice	
	Laboratory	
Week 13	Theoretical	The basic operations of functions andtypes of functions
	Practice	
	Laboratory	
Week 14	Theoretical	parabola and its Graphs
	Practice	
	Laboratory	
Week 15	Theoretical	parabola and its Graphs
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC2	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC3	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC4	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC5	0	0	0	0	0	0	0	0	0	0	0	0	3	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Technical and Vocational Drawing		
Course Code	MTK 1111	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	4
Hours Per Week	3	ECTS	6
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Geometric drawing rulesSubtraction three aspectsDimensioningSection ViewsMake a drawing of machine elementsRead and write to Electronic Schema

The Aim of Course

Ability to draw technical drawings according to international standards and to have the ability of reading existing drawings.

Learning Outcomes

1. To apply by learning the principles of technical drawing .
2. Technical draw a picture of

Evaluation Criteria

Vize (%30) Ödev (%20) Final (%50)

Recommended or Required Reading

1. BULUÇ MACİT "Technical drawing I – II" Dokuz Eylül university pub. NO:22. ÖZTAŞ NİMET, GEDİKTAŞ MUSTAFA "Technical drawing", Çağlayan Basımevi, 1988 3-ÖZÇİLİNGİR NAİL, "Technical drawing", İstanbul 2002 4-DOĞRU A,NACAR M.,"Electrics profession drawing", 2005, Kahramanmaraş,Türkiye.5-ALACACI, M., "Basic electronics", Özkan printing., 2004, Ankara, Türkiye. 6-GÖRKEM A.,"Electromechanic control systems", Özkan printing, 2003 Ankara,Türkiye.

Course Content

Week	Topic	Content
Week 1	Theoretical	Rules of descriptive geometry and drawing skills
	Practice	
	Laboratory	
Week 2	Theoretical	Appearance removal
	Practice	
	Laboratory	
Week 3	Theoretical	Cross-sectional view
	Practice	
	Laboratory	
	Theoretical	Subtraction of perspective

Week 4	Practice	
	Laboratory	
Week 5	Theoretical	Dimensioning
	Practice	
	Laboratory	
Week 6	Theoretical	To show tolerances
	Practice	
	Laboratory	
Week 7	Theoretical	Surface roughness
	Practice	
	Laboratory	
Week 8	Theoretical	To make a drawing of machine elements
	Practice	
	Laboratory	
Week 9	Theoretical	To draw assembly and detail drawings
	Practice	
	Laboratory	
Week 10	Theoretical	Analog to draw circuit diagrams
	Practice	
	Laboratory	
Week 11	Theoretical	To draw a digital circuit diagrams
	Practice	
	Laboratory	
Week 12	Theoretical	Read and write to Electronic Schema
	Practice	
	Laboratory	
Week 13	Theoretical	Draw a complete mechatronic systems
	Practice	
	Laboratory	
Week 14	Theoretical	Draw a sketch drawing
	Practice	
	Laboratory	
Week 15	Theoretical	Draw a sketch drawing
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	0	0	0	0	0	0	0	0	3	0
OC2	3	0	0	0	0	0	0	0	0	0	0	0	3	0
OC3	3	0	0	0	0	0	0	0	0	0	0	0	3	0
OC4	0	0	3	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Mechanisms		
Course Code	MTK 1121	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Introduction to basic concepts of mechanisms, cams detachable fasteners removable fasteners, bearings, and an emphasis on issues such as the powertrain.

The Aim of Course

This course is a broad framework of machine elements and basic presentation made fasteners, connectors, power and motion transfer components, the non-linear mechanisms of forward movement, a marking is given.

Learning Outcomes

1. To be able to choose the appropriate connection element in Mechanical assembly
2. To be able to recognize Bearing and effectively use the elements
3. To be able to use the power and motion transmission in machine design
4. To be able to use Mechanisms in the field of mechatronics.

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Eres SÖYLEMEZ birsen basım yayın.

Course Content

Week	Topic	Content
Week 1	Theoretical	Techniques and basic concepts of the mechanism
	Practice	
	Laboratory	
Week 2	Theoretical	Removable connectors-1 (screws, bolts)
	Practice	
	Laboratory	
Week 3	Theoretical	Removable connectors-2 (Wedge, segmented, tightly interlaced)
	Practice	
	Laboratory	
Week 4	Theoretical	Detachable fasteners and methods-1 (rivets, hot-plug assemblies)
	Practice	
	Laboratory	

Week 5	Theoretical	Detachable fasteners and methods-2 (soldering, welding)
	Practice	
	Laboratory	
Week 6	Theoretical	Driveline assembly-1 (Clutches, Gears mechanisms)
	Practice	
	Laboratory	
Week 7	Theoretical	Driveline assembly-2 (belt and pulley, screw systems, cam systems)
	Practice	
	Laboratory	
Week 8	Theoretical	Assembling bearing elements-1 (sliding bearings)
	Practice	
	Laboratory	
Week 9	Theoretical	Mid Term
	Practice	
	Laboratory	
Week 10	Theoretical	Bearing elements assembling-2 (Rolling element bearings)
	Practice	
	Laboratory	
Week 11	Theoretical	Transmit power over long distances-1 (the belt-pulley systems)
	Practice	
	Laboratory	
Week 12	Theoretical	Transmit power over long distances-2 (chain gears)
	Practice	
	Laboratory	
Week 13	Theoretical	Design of cam do
	Practice	
	Laboratory	
Week 14	Theoretical	Analysis of the mechanisms to move
	Practice	
	Laboratory	
Week 15	Theoretical	Force analysis of mechanisms to make
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	0	0	0	0	0	0	0	0	3	0
OC2	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC3	0	0	0	0	0	0	0	0	0	0	0	0	3	0
OC4	3	0	3	0	0	0	0	0	0	0	0	0	3	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Measurement Technique		
Course Code	MTK 1131	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Measurement, Calibration, physical and electrical standard units and unit conversions. Fundamental principles of error, delay, effect. Classification and combination of errors. Measurable values of current, voltage and power. Instantaneous, average, maximum and effective values of the electrical measures. Definitions and measurements of active, reactive power. Moving coil meters and electrodynamic meters: general specifications; wattmeters, voltmeters, ammeters. Measurement of resistance, capacitance and inductance. Measurement with oscilloscope.

The Aim of Course

Being able to realize the definition of measurement, calibration and electrical standard units. Fundamental principles of measurement, types of measurement errors and being able to calculate error rates.

Learning Outcomes

1. To be able to comprehend the basic and derived units accepted by the international system (S.I.), the symbols and principles of measuring instruments
2. To be able to recognize basic electrical measuring instruments
3. To be able to measure resistance, voltage, current, power etc. with electrical measuring instruments
4. To be able to recognize circuit elements and parameters in electrical-electronic circuits and measure by oscilloscope

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

-- ALACACI, M., (2003), Electrical-Electronic Measurements and Job Security.-- NACAR, M., (2012), Electric-Electronic Measurement Technique.-- ÖZDEMİR, A., (2010), Electric-Electronic Measurement-- BEREKET, M., TEKİN, E., (2010), Basic Electronics and Measurement (Application Book), Mavi Publications, İzmir.

Course Content

Week	Topic	Content
Week 1	Theoretical	Physical quantities, the physical size of the units of measure, measurement tools for
	Practice	
	Laboratory	
Week 2	Theoretical	Physical quantities, the physical size of the units of measure, measurement tools for
	Practice	
	Laboratory	
	Theoretical	Investigation of measurement devices principles, Learning of measurement devices

Week 3	Practice	
	Laboratory	
Week 4	Theoretical	Presentation of measurement devices, measurement errors, and observation of device
	Practice	
	Laboratory	
Week 5	Theoretical	Presentation of DC Ammeter and Voltmeter, Learning of usages, making resistance
	Practice	
	Laboratory	
Week 6	Theoretical	Get to know about multimeters, learning of reading and using of analog and digital
	Practice	
	Laboratory	
Week 7	Theoretical	Measurement of AC current and voltage, and getting to know the devices about these
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm
	Practice	
	Laboratory	
Week 9	Theoretical	Presentation of measurement transformers, observation of current and voltage trs.,
	Practice	
	Laboratory	
Week 10	Theoretical	Comprehension of principles of power and work measurements in electrical circuits,
	Practice	
	Laboratory	
Week 11	Theoretical	Observation of frequency, power coefficient, cycle analysis and introducing of
	Practice	
	Laboratory	
Week 12	Theoretical	Recogniziton of pens multimeters, environmental measuring devices, Gaussmeter,
	Practice	
	Laboratory	
Week 13	Theoretical	Set up circuits about observed measurement devices and making some practice
	Practice	
	Laboratory	
Week 14	Theoretical	Learning of structure of oscilloscope and working principles and characteristics of them,
	Practice	
	Laboratory	
Week 15	Theoretical	Measurement of phase difference, power, current using oscilloscope and making square
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	5	0	0	0	4	0	0	0	0	0	4	0	0	0
OC2	4	0	0	0	4	0	0	0	0	0	4	0	0	0
OC3	4	0	0	0	4	0	0	0	0	0	4	0	0	0
OC4	5	0	0	0	4	0	0	0	0	0	4	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Electronics 1		
Course Code	MTK 1161	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Diyot ve diyot çeşitleri, 1 ve 3 Fazlı doğrultma devreleri, Filtre devreleri, regüle devreleri, transistör ve transistör çeşitleri, yükselteç devreleri.

The Aim of Course

Bu ders ile öğrenci, elektronik devrelerinin temel elemanlarını tanıyacak ve devreler kurabilecek,giriş ve çıkış sinyallerini karşılaştırabilecektir.

Learning Outcomes

1. Elektronikte kullanılan yarıiletkenlerin yapıldığı malzemeleri ve özelliklerini tanıyabilme
2. BJT'lerin yapı, özellik, çeşit, çalışma prensiplerini ve ön gerilimlenmesini kavrayabilme
3. FET'lerin yapı, özellik,çeşit, çalışma prensiplerini ve ön gerilimlenmesini kavrayabilme
4. Doğru akım devre analizi ilkelerini uygulayabilme

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

-- SELEK, H.S., (2011), Elektronik-1 (Analog Elektronik), Seçkin Yayıncılık, Ankara.-- DEMİREL H., Temel Elektrik-Elektronik, Birsen Yayınevi.-- YARCI,, K, ÖZTÜRK, O., (2000), Temel Elektronik, Yüce Yayınları, İstanbul.-- BEREKET, M., TEKİN, E., (2011), Analog Elektronik, Mavi Kitaplar, İzmir.

Course Content

Week	Topic	Content
Week 1	Theoretical	Transistorlerin polarması
	Practice	
	Laboratory	
Week 2	Theoretical	Transistorlü yükselteç devreleri
	Practice	
	Laboratory	
Week 3	Theoretical	Fetlerin polarması
	Practice	
	Laboratory	
	Theoretical	Fetli yükselteç devreleri

Week 4	Practice	Transistör ve Fet Ölçümleri
	Laboratory	Endüstriyel Elektronik Laboratuvarı
Week 5	Theoretical	Yükselteçlerin frekans analizi (Bode diyagramı)
	Practice	Yükselteçlerin frekans analizi (Bode diyagramı)
	Laboratory	Endüstriyel Elektronik Laboratuvarı
Week 6	Theoretical	Fark yükselteçleri
	Practice	
	Laboratory	
Week 7	Theoretical	İşlemsel yükselteçlerin polarması
	Practice	
	Laboratory	
Week 8	Theoretical	İşlemsel yükselteçlerin karakteristik analizi
	Practice	
	Laboratory	
Week 9	Theoretical	Ara Sınav
	Practice	
	Laboratory	
Week 10	Theoretical	İşlemsel yükselteçler
	Practice	
	Laboratory	
Week 11	Theoretical	İşlemsel yükselteçli uygulama devreleri
	Practice	
	Laboratory	
Week 12	Theoretical	İşlemsel yükselteçli uygulama devreleri
	Practice	İşlemsel yükselteçli uygulama devreleri
	Laboratory	Endüstriyel Elektronik Laboratuvarı
Week 13	Theoretical	İşlemsel yükselteçli kompansatörler
	Practice	
	Laboratory	
Week 14	Theoretical	Enstrümantal yükselteçler
	Practice	Enstrümantal yükselteçler
	Laboratory	Endüstriyel Elektronik Laboratuvarı
Week 15	Theoretical	Osilatörler ve aktif filitreler
	Practice	Osilatörler ve aktif filitreler
	Laboratory	Endüstriyel Elektronik Laboratuvarı

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	4	0	0	0	4	0	0	0
OC2	0	0	0	3	0	0	3	0	0	0	4	0	0	0
OC3	0	0	0	3	0	0	4	0	0	0	3	0	0	0
OC4	0	0	0	4	0	0	4	0	0	0	5	0	0	0
OC5	0	0	0	3	0	0	4	0	0	0	5	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Circuit Analysis 1		
Course Code	MTK 1171	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Static electric.Taking precautions against unforeseen effects of electric current. Physical and electrical definitions of resistance, Ohm's law. Ideal and real current and voltage sources. DC current circuit solutions. Electrical footprint of work, power, energy and efficiency. Equation derivation for and from meshed circuits for loop current, branch current and node voltage solving methods. Superposition, Thevenin's and Norton's theorems. Maximum power transfer theorem. Electrical and physical properties of capacitance and inductance as energy storing devices and their behaviors in series and paralel connections.

The Aim of Course

In this course, to be implement the principles of the electric current and to be make solutions of all the direct current electrical circuits qualifications are aimed to gain.

Learning Outcomes

1. To be able to apply the basic principles of the electric current
2. To be able to solve the basic circuit problems
3. To be able to solve the complex circuit problems
4. To be able to understand the effects of direct current circuit elements

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Direct Current Circuits Analysis, Abdullah Görkem, Metin Kuş, Özkan Printing Industry, Ankara, 2004.

Course Content

Week	Topic	Content
Week 1	Theoretical	Static electric.Taking precautions against unforeseen effects of electric current.
	Practice	
	Laboratory	
Week 2	Theoretical	Physical and electrical definitions of resistance, Ohm's law.
	Practice	
	Laboratory	
Week 3	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.
	Practice	

	Laboratory	
Week 4	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.
	Practice	DC current serial, paralel and serial-parallel circuit solutions.
	Laboratory	Measuring laboratory
Week 5	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.
	Practice	DC current serial, paralel and serial-parallel circuit solutions.
	Laboratory	Measuring laboratory
Week 6	Theoretical	Electrical footprint of work, power, energy and efficiency.
	Practice	Electrical footprint of work, power, energy and efficiency.
	Laboratory	Measuring laboratory
Week 7	Theoretical	Equation derivation for and from meshed circuits for loop current and branch current
	Practice	
	Laboratory	
Week 8	Theoretical	Loop current and node voltage solving methods
	Practice	Loop current and node voltage solving methods
	Laboratory	Measuring laboratory
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	Superposition theorem.
	Practice	Superposition theorem.
	Laboratory	Measuring laboratory
Week 11	Theoretical	Thevenin's and Norton's theorems. Maximum power transfer theorem.
	Practice	Thevenin's and Norton's theorems. Maximum power transfer theorem.
	Laboratory	Measuring laboratory
Week 12	Theoretical	Direct current solution methods
	Practice	Direct current solution methods
	Laboratory	Measuring laboratory
Week 13	Theoretical	Maximum power transfer theorem.
	Practice	Maximum power transfer theorem.
	Laboratory	Measuring laboratory
Week 14	Theoretical	Electrical and physical properties of capacitance and inductance as energy storing devices
	Practice	
	Laboratory	
Week 15	Theoretical	Electrical and physical properties of capacitance and inductance as energy storing devices
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	5	0	0	4	0	0	0	3	0	0	0
OC2	0	0	0	5	0	0	5	0	0	0	5	0	0	0
OC3	0	0	0	4	0	0	3	0	0	0	4	0	0	0
OC4	0	0	0	5	0	0	4	0	0	0	4	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Research Methods and Techniques		
Course Code	MTK 1181	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

To study, research, report and make oral presentation on a vocational subject in conformity with scientific study rules and ethics.

The Aim of Course

It is aimed that a student who is about to graduate should have ability to make research about his/her profession in depth, to improve himself/herself about his/her study subject, to report and to make influential presentation his/her study in conformity with the determined rules.

Learning Outcomes

1. To be able to improve the vocational interest and knowledge depth of students
2. To be able to gain capability to make independent study and selflearning
3. To be able to gain ability to reach primary and secondary resources in researches
4. To be able to able to analyse and disassembly a scientific subject
5. To be able to gain capability computer, software, internet and survey (Project, experiment) needed in a report or study

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1-Internet search2-Araştırma Yöntemleri ve Teknikleri, Hazırlayan: Mehmet Şahin Yayınevi : Eğitim Kitabevi Yayınları

Course Content

Week	Topic	Content
Week 1	Theoretical	Distribution of the study topics to the students
	Practice	
	Laboratory	
Week 2	Theoretical	Introduction to research methods and planning of research
	Practice	
	Laboratory	
Week 3	Theoretical	To reach primary and secondary resources in researches
	Practice	
	Laboratory	

Week 4	Theoretical	To arrange the collected resources, text referring and types of referring
	Practice	
	Laboratory	
Week 5	Theoretical	Development of the Project/ Designing a survey/sample surveys/sample projects
	Practice	
	Laboratory	
Week 6	Theoretical	Designing index and chapters in study
	Practice	
	Laboratory	
Week 7	Theoretical	Preparing and showing of foreword, abstract, figures and graphics
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	Checking the conformity to writing rules, and correction of mistakes
	Practice	
	Laboratory	
Week 10	Theoretical	Assessment of results obtained in the study
	Practice	
	Laboratory	
Week 11	Theoretical	Ethics in scientific studies
	Practice	
	Laboratory	
Week 12	Theoretical	Presentation techniques /preparation of presentation
	Practice	
	Laboratory	
Week 13	Theoretical	Collective presentation / workshop
	Practice	
	Laboratory	
Week 14	Theoretical	Collective presentation / workshop
	Practice	
	Laboratory	
Week 15	Theoretical	Designing the bibliography
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	3	0	0	0	0	0	0	0	0	0	0	0
OC2	0	0	0	0	0	0	3	0	0	0	0	0	0	0
OC3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
OC4	0	0	0	0	3	0	0	0	0	0	0	0	0	0
OC5	0	0	0	3	0	0	0	0	0	0	0	0	0	0
OC6	0	0	0	0	0	3	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Occupational Health and Safety		
Course Code	MTK 1191	Activity Type	Compulsory
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The concept of job security and the basic principles, measures related to electricity use, machinery and related measures, first aid, personal protectors, safety at work legislation

The Aim of Course

With this course the students, aimed to gain the competencies required to ensure safety

Learning Outcomes

1. First aid measures for
2. Working to ensure the safety of
3. Occupational safety legislation to take appropriate measures

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

İş Sağlığı ve Güvenliği (İSG) Temel Konular, Yrd. Doç. Dr. Hasan Selçuk Selek, Ekim 2016 / 1. Baskı / 431 Syf.İş Sağlığı ve İş Güvenliği, Teoman Akpınar, Y. Tarihi:Eylül 2014, Sayfa: 576, Ekin Yayınevi ISG Mevzuatı (www.mevzuat.gov.tr)

Course Content

Week	Topic	Content
Week 1	Theoretical	First Aid training
	Practice	
	Laboratory	
Week 2	Theoretical	First Aid training
	Practice	
	Laboratory	
Week 3	Theoretical	First Aid training
	Practice	
	Laboratory	
Week 4	Theoretical	First Aid training
	Practice	
	Laboratory	

Week 5	Theoretical	Provide personal safety
	Practice	
	Laboratory	
Week 6	Theoretical	Provide personal safety
	Practice	
	Laboratory	
Week 7	Theoretical	Provide personal safety
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm
	Practice	
	Laboratory	
Week 9	Theoretical	Ensuring the safety of employees
	Practice	
	Laboratory	
Week 10	Theoretical	Ensuring the safety of employees
	Practice	
	Laboratory	
Week 11	Theoretical	The business environment is to provide security
	Practice	
	Laboratory	
Week 12	Theoretical	The business environment is to provide security
	Practice	
	Laboratory	
Week 13	Theoretical	Safety at Work legislation
	Practice	
	Laboratory	
Week 14	Theoretical	Safety at Work legislation
	Practice	
	Laboratory	
Week 15	Theoretical	Safety at Work legislation
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	5	0	0	5	0	0	0	0	0	0	0	0	0
OC2	0	5	0	0	5	0	0	0	0	0	0	0	0	0
OC3	0	5	0	0	5	0	0	0	0	0	0	0	0	0
OC4	0	5	0	0	5	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Information Technologies		
Course Code	MTK 1201	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Basic Computer Knowledge, Internet and internet browser, Office programs, e-mail management, forums, graphics, presentation preparation, promotional material preparation, spreadsheet, formulas and functions,

The Aim of Course

This course is concerned with the development of competencies kazandırılmasını amaçlamaktır itself using computational facilities.

Learning Outcomes

1. To know basic computer and internet information
2. To be able to make edit numeric data
3. To be able to make powerpointle prepare a presentation
4. To be able to make working in word

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Computer 2 Lecturer İsmail Sarı-Ömer Bagci, Internet Programming 1-Turgut Yasar Abu Bakr Özseven, Computer and Internet Use Cebi Bal Hasan

Course Content

Week	Topic	Content
Week 1	Theoretical	Basic Computer Knowledge
	Practice	
	Laboratory	
Week 2	Theoretical	Electronic mail management
	Practice	
	Laboratory	
Week 3	Theoretical	Newsgroups / Forums
	Practice	
	Laboratory	
Week 4	Theoretical	Excel
	Practice	

	Laboratory	
Week 5	Theoretical	Formulas and functions
	Practice	
	Laboratory	
Week 6	Theoretical	graphics
	Practice	
	Laboratory	
Week 7	Theoretical	Powerpoint
	Practice	
	Laboratory	
Week 8	Theoretical	powerpointle presentation preparation
	Practice	
	Laboratory	
Week 9	Theoretical	Examination-Midterms
	Practice	
	Laboratory	
Week 10	Theoretical	personal web site development
	Practice	
	Laboratory	
Week 11	Theoretical	web-based learning
	Practice	
	Laboratory	
Week 12	Theoretical	resume word processing program
	Practice	
	Laboratory	
Week 13	Theoretical	Introductory materials, preparation
	Practice	
	Laboratory	
Week 14	Theoretical	preparation for job interview
	Practice	
	Laboratory	
Week 15	Theoretical	Viruses, safetly
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	5	3	3	2	0	1	3	3	1	3	0	0	0	0
OC2	5	3	3	2	0	2	2	3	1	3	0	0	0	0
OC3	5	3	4	2	0	0	3	3	1	3	0	0	0	0
OC4	5	2	4	2	0	0	4	3	1	3	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Quality Management		
Course Code	MTK 1211	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

General Management Principles and Functions of ManagementTheir aim: General Principles of Change Management Reasons for ChangeWhat is Quality?Past to Present Quality Total Quality Date Twelve Applying Deming's Quality Improvement Total Quality Management Policy Basic Quality Applications / Training Total Quality ManagementPrinciples of Quality Circles / Quality Circles Organizational StructureOrganizations for Success and Quality Referrals Huntun Total Quality planning Quality Circles Ten Step Description and Objectives Main Elements of Basic Principles of Total Quality Management and the Underlying Strategic Quality Management / Swot Analysis Quality Cost and Return / Monitoring and Evaluation Evaluation Tools and Methods Iso 9000 Quality Assurance System / ISO9000 Standards ISO 9000: 1994 Series of Standards and Guidelines / ISO 9001: 2000 Approach

The Aim of Course

Quality systems and the installation of these systems to understand the businesses

Learning Outcomes

1. To be able to learn the requirements of ISO 9001:2008 QMS standard
2. To be able to learn the criteria of the EFQM excellence model
3. To be able to explain other concepts related to quality and quality
4. To be able to apply quality standards

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

lecture notes

Course Content

Week	Topic	Content
Week 1	Theoretical	General Management Principles and Functions of Management
	Practice	
	Laboratory	
Week 2	Theoretical	Their aim: General Principles of Change Management Reasons for Change
	Practice	
	Laboratory	
	Theoretical	What is Quality?

Week 3	Practice	
	Laboratory	
Week 4	Theoretical	Past to Present Quality Total Quality Date
	Practice	
	Laboratory	
Week 5	Theoretical	Development Dimensions
	Practice	
	Laboratory	
Week 6	Theoretical	Twelve Applying Deming's Quality Improvement Total Quality Management Policy
	Practice	
	Laboratory	
Week 7	Theoretical	Organizations for Success and Quality Referrals Huntun Total Quality planning Quality
	Practice	
	Laboratory	
Week 8	Theoretical	Basic Principles of Quality Circles / Quality Circles Organizational Structure
	Practice	
	Laboratory	
Week 9	Theoretical	Exam
	Practice	
	Laboratory	
Week 10	Theoretical	Main Elements of Basic Principles of Total Quality Management and the Underlying
	Practice	
	Laboratory	
Week 11	Theoretical	Strategic Quality Management / Swot Analysis
	Practice	
	Laboratory	
Week 12	Theoretical	Quality Cost and Return / Monitoring and Evaluation
	Practice	
	Laboratory	
Week 13	Theoretical	Evaluation Tools and Methods
	Practice	
	Laboratory	
Week 14	Theoretical	Iso 9000 Quality Assurance System / ISO9000 Standards ISO 9000: 1994 Series of
	Practice	
	Laboratory	
Week 15	Theoretical	Quality Applications / Training Total Quality Management
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC4	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Network Systems		
Course Code	MTK 1221	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Introduction; Communication Network Architecture; Communications Network Protocols; Layers and Related Protocols, Error and Collision Detection, Sockets

The Aim of Course

The goal of this course is to familiarize students with the terminology and concepts related to data communication, computer networks, and Internetworking. At the end of this course, students will be able to understand the principles of computer networking, including protocol design, protocol layering, addressing, routing, and basic network security issues. Through the laboratory assignments, the students will be able to uses various networkrelated UNIX commands and tools for monitoring, decoding protocol data, and analyzing network traffic.

Learning Outcomes

1. Associate networking functions with the appropriate layers of the ISO/OSI network layering model.
2. Examine and evaluate physical, data link-layer, and local area network concepts.
3. Describe and implement with various congestion control, error detection, and error correction schemes.
4. Examine and synthesize the IP protocol, IP addressing.
5. Describe and analyze the essential features of the connection-oriented and connectionless transport layer protocols TCP and UDP.
6. Effectively use commonly used network-related commands, monitoring tools and traffic analyzers.
7. Implement client-server applications using socket programming library of the UNIX platform.

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Main Textbook: Computer Networks, 4th Edition, Andrew Tanenbaum© 2003 | Prentice Hall | Paper ISBN: 0130384887
Reference Books: Computer Networks: A Systems Approach. Peterson & Davie. Morgan Kaufmann, Publ., latest edition (3rd). Fred Halsall, Data Communications, Computer Networks and Open Systems, Fourth Edition, Assison Wesley, Pearson Education, 1996, ISBN 0-201-42293-X

Course Content

Week	Topic	Content
Week 1	Theoretical	Introduction to Compter Networks. Tools, techniques and methodologies used in
	Practice	
	Laboratory	Related Exercises

Week 2	Theoretical	Physical Layer
	Practice	
	Laboratory	Related Exercises
Week 3	Theoretical	Framing, Error Correction and Error Detection
	Practice	
	Laboratory	Related Exercises
Week 4	Theoretical	MAC Protocols, MAC Adressing, Collision Detection and Control
	Practice	
	Laboratory	Related Exercises
Week 5	Theoretical	Network Layer, IP Adressing, Subnetworking
	Practice	
	Laboratory	Related Exercises
Week 6	Theoretical	ICMP Protocol, Address binding
	Practice	
	Laboratory	Related Exercises
Week 7	Theoretical	Routing protocols
	Practice	
	Laboratory	Related Exercises
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	Routing protocols
	Practice	
	Laboratory	Related Exercises
Week 10	Theoretical	IP Routing protocols:IGP (RIP, OSPF) EGP(BGP)
	Practice	
	Laboratory	Related Exercises
Week 11	Theoretical	Tansport Layer Concepts, Connection oriented and Connectionless networking
	Practice	
	Laboratory	Related Exercises
Week 12	Theoretical	Transport Layer: TCP and UDP protocols
	Practice	
	Laboratory	Related Exercises
Week 13	Theoretical	Transport Layer: Flow Control, Congestion Control
	Practice	
	Laboratory	Related Exercises
Week 14	Theoretical	Sockets, Connection Oriented and Connectionless clientserver programming
	Practice	
	Laboratory	Related Exercises
Week 15	Theoretical	Transport Layer Concepts, Connection oriented and Connectionless networking
	Practice	
	Laboratory	Related Exercises

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	1	0	4	3	5	0	0	0	0	0	0	0	0	0
OC2	3	0	0	3	5	4	2	4	3	0	0	0	0	0
OC3	3	3	2	3	5	0	1	2	4	2	0	0	0	0
OC4	1	0	0	3	5	0	3	3	4	0	0	0	0	0
OC5	2	3	1	3	5	2	3	4	2	0	0	0	0	0
OC6	1	1	1	3	5	0	0	3	3	3	0	0	0	0
OC7	4	0	0	3	5	3	2	0	0	1	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Advanced Production Systems		
Course Code	MTK 1231	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The concept of quality management, lean production system, failure mode and effects analysis, quality function deployment, six sigma, statistical proses control, quality tools, enterprise resource planning, material requirement planning, production systems based on automation

The Aim of Course

learning of modern production systems,applications to be informed about,comparing each of these systems

Learning Outcomes

1. To be able to interpret what modern production systems are
2. To be able to analyze the applications of modern production systems
3. To be able to compare each of these systems
4. To be able to learn the development of modern production systems

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Production and Operations Management – Dr. K. Aswathappa, Prof. K. ShidharaOperations Management – Richard Chase, F. Robert Jacobs, Nicholas J. AquilianoOperations Management – Prof. Dr. Bülent KobuOperations Management – Prof. Dr. Cengiz Yılmaz & Assoc. Prof. Dr. Ali Eleren

Course Content

Week	Topic	Content
Week 1	Theoretical	The concept of quality management and new approaches
	Practice	
	Laboratory	
Week 2	Theoretical	Lean manufacturing system and its historical development
	Practice	
	Laboratory	
Week 3	Theoretical	Dimensions of Lean manufacturing system and its applications
	Practice	
	Laboratory	
	Theoretical	Failure modes and effects analysis

Week 4	Practice	
	Laboratory	
Week 5	Theoretical	Quality Function deployment
	Practice	
	Laboratory	
Week 6	Theoretical	Six sigma
	Practice	
	Laboratory	
Week 7	Theoretical	Statistical Process control
	Practice	
	Laboratory	
Week 8	Theoretical	Statistical Process control
	Practice	
	Laboratory	
Week 9	Theoretical	Examination-Midterms
	Practice	
	Laboratory	
Week 10	Theoretical	Quality tools – Run charts, Checklists, Control charts
	Practice	
	Laboratory	
Week 11	Theoretical	Quality tools – Pareto Diagram, Cause and effect analysis
	Practice	
	Laboratory	
Week 12	Theoretical	Enterprise resource planning
	Practice	
	Laboratory	
Week 13	Theoretical	New approaches in stock kontrol – Materials Requirement planning
	Practice	
	Laboratory	
Week 14	Theoretical	Computer aided manufacturing (CAM), Computer integrated manufacturing,
	Practice	
	Laboratory	
Week 15	Theoretical	General Evaluation
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC2	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC3	4	0	0	0	4	0	0	0	0	0	0	0	0	0
OC4	4	0	0	0	4	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Manufacturing Operations		
Course Code	MTK 1241	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

This course includes defining the shape-making capabilities of the materials, methods of making plastic shape. Types of stress, one, two and three-axis tensile stress-strain relations cases. Basic principles of plastic deformation. Strength building operations. Deformation mechanisms, factors affecting the plastic deformation. Furnaces used in the making, plastic shapes. Forging, rolling, extrusion, wire drawing. Pipe production; stitch and seamless pipe production methods. Metallic plates forming methods, cutting, bending, spinning, stretching forming and deep drawing.

The Aim of Course

To teach methods of plastic forming and basic principles of plastic deformation. And also strength increasing treatments, factors effecting plastic deformation.

Learning Outcomes

1. To be able to explain hardness, tensile, compression, makes the definition, such as the ability to change shape of materials andclassify to the operation for making the mechanical tests
2. To be able to define metallurgical microstructure in the deformation ability of crystal types and crystal defects in metallurgical microstructure
3. To be able to define plastic forming process errors, performs to the appropriate preventive actions
4. To be able to define chipless forming methods

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

1- Mustafa Cigdem, "Manufacturing procedures", Caglayan Publisher, 2006. 2- Ergin N.Cavusoğlu, Casting Technology, I.T.U. Publisher, 1976. 3- Phillip F. Ostwald, Jaira Munoz, "Manufacturing Processes and Systems", John Wiley&Sons, 1997. 4- Mikell P.Groover, "Fundamentals of modern manufacturing" John Wiley&Sons, 2010.

Course Content

Week	Topic	Content
Week 1	Theoretical	Principles of plastic forming
	Practice	
	Laboratory	
Week 2	Theoretical	Stress and strain in metallic materials
	Practice	
	Laboratory	

Week 3	Theoretical	Elastic and plastic deformation
	Practice	
	Laboratory	
Week 4	Theoretical	Hot and cold deformation
	Practice	
	Laboratory	
Week 5	Theoretical	Plastic deformation mechanisms
	Practice	
	Laboratory	
Week 6	Theoretical	Factors affecting the plastic deformation
	Practice	
	Laboratory	
Week 7	Theoretical	Plastic forming methods and forging equipment
	Practice	
	Laboratory	
Week 8	Theoretical	Rolling, rolling products
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm examination
	Practice	
	Laboratory	
Week 10	Theoretical	Extrusion, extrusion types, extrusion of metal flow
	Practice	
	Laboratory	
Week 11	Theoretical	Rod and wire drawing operations
	Practice	
	Laboratory	
Week 12	Theoretical	Production of pipes, welded, seamless pipe and tube drawing
	Practice	
	Laboratory	
Week 13	Theoretical	Sheet metal processing methods
	Practice	
	Laboratory	
Week 14	Theoretical	Cutting, bending and breaking
	Practice	
	Laboratory	
Week 15	Theoretical	Plaster, shaping, stretching, deep drawing
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC2	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC3	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC4	3	0	0	0	3	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Basics of Mechatronics		
Course Code	MTK 1251	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Definition and principles of Mechatronics Engineering, Engineering profession and ethics, other engineering areas, the location and requirements in other engineering disciplines of Mechatronics Engineering, Mechatronics engineering expectations from, Equipment and components, the importance of the development of mechatronic products, the ability to solve real engineering problems on the acquisition of problem. The future of technology and the importance of place in mechatronics engineering, basic electrical engineering and mechanical issues, promotion of basic sensors and actuators.

The Aim of Course

Mechatronics Engineering definitions and principles of the profession and ethics, other engineering disciplines and position in the requirements, expectations, Machinery and components, mechatronic products, the importance of developing future technology The importance be given.

Learning Outcomes

1. To be able to get the ability of definition and principles of Mechatronics Engineering
2. To be able to get the ability of engineering profession and ethics
3. To be able to get the ability of the location and requirements in other engineering disciplines of Mechatronics Engineering
4. To be able to have the knowledge about mechatronic systems.

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

• The Mechatronics Handbook, R. H. Bishop, CRC Pres, Florida-USA, 2002. • Mechatronics, 2nd Ed., W. Bolton, Prentice Hall, London, 1999•Mechatronics: An Integrated Approach, Clarence W. De Silva, CRC, 2005.

Course Content

Week	Topic	Content
Week 1	Theoretical	Definition and principles of Mechatronics Engineering
	Practice	
	Laboratory	
Week 2	Theoretical	Engineering profession and ethics
	Practice	

	Laboratory	
Week 3	Theoretical	other engineering areas
	Practice	
	Laboratory	
Week 4	Theoretical	location and requirements in other engineering disciplines of Mechatronics Engineering
	Practice	
	Laboratory	
Week 5	Theoretical	Mechatronics engineering expectations from
	Practice	
	Laboratory	
Week 6	Theoretical	Mechatronics engineering expectations from
	Practice	
	Laboratory	
Week 7	Theoretical	Equipment and components
	Practice	
	Laboratory	
Week 8	Theoretical	Electronic components
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	the importance of the development of mechatronic products
	Practice	
	Laboratory	
Week 11	Theoretical	the ability to solve real engineering problems on the acquisition of problem
	Practice	
	Laboratory	
Week 12	Theoretical	The future of technology and the importance of place in mechatronics engineering
	Practice	
	Laboratory	
Week 13	Theoretical	basic electrical engineering and mechanical issues
	Practice	
	Laboratory	
Week 14	Theoretical	basic sensors and actuators
	Practice	
	Laboratory	
Week 15	Theoretical	General Overview
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	4	5	4	4	5	0	0	0	0	0	0	0	0	0
OC2	4	5	4	4	5	0	0	0	0	0	0	0	0	0
OC3	4	5	5	4	5	0	0	0	0	0	0	0	0	0
OC4	4	5	4	5	5	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Scientific Principles of Technology		
Course Code	MTK 1261	Activity Type	Optional
Semester	Autumn	Semester	1
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Properties of matter.Static: The static equilibrium condition with the planar forces solve problems.Dynamic: Time, speed, acceleration and distance problems involving solutions.Energy: The energy-related problems, solutions.

The Aim of Course

The purpose of this course is to provide a common basis for future studies in technology physics is to understand the basic concepts of science.

Learning Outcomes

1. To understand of the physical principals.
2. To establish a link betweeen physical rules and technology.
3. To apply in his/her occupational lectures.
4. To produce solutions in using or designing of the tools, machines or devices by using physic rules.
5. To solve the engineering problems in his/her area.

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

1. Orhun, Ö, Meslek Yüksekokulları İçin Teknolojinin Bilimsel İlkeleri, ISBN 9755400532, Bilim Teknik Yayınevi 2. Sarı, İ., Teknolojinin Bilimsel İlkeleri, ISBN 975 02 0644 3 Seçkin Yayıncılık3. J.L. Meriam, L:G: Kraige " Engineering Mechanics: STATICS" (1998) 5. J.L. Meriam, L:G: Kraige " Engineering Mechanics: DYNAMICS" (1998)

Course Content

Week	Topic	Content
Week 1	Theoretical	Description of the course, dimensions, unit systems.
	Practice	
	Laboratory	
Week 2	Theoretical	Vectors, vectoral calculation, force and resultants.
	Practice	
	Laboratory	
Week 3	Theoretical	Moment of inertia.
	Practice	
	Laboratory	

Week 4	Theoretical	Equilibrium, simple machines.
	Practice	
	Laboratory	
Week 5	Theoretical	Levers, pulleys and gears.
	Practice	
	Laboratory	
Week 6	Theoretical	Newton’s Second law, Velocity, accelaration.
	Practice	
	Laboratory	
Week 7	Theoretical	Motion with constant velocity, motion with constant accelaration.
	Practice	
	Laboratory	
Week 8	Theoretical	Friction, motion with friction.
	Practice	
	Laboratory	
Week 9	Theoretical	Work and Energy, kinetic and potential energy.
	Practice	
	Laboratory	
Week 10	Theoretical	Conservation of the energy, power.
	Practice	
	Laboratory	
Week 11	Theoretical	Momentum and impuls, collisions.
	Practice	
	Laboratory	
Week 12	Theoretical	Materials, common qualifications of the materials.
	Practice	
	Laboratory	
Week 13	Theoretical	Pressure on the rigid materials, fluids and gases, buoyancy.
	Practice	
	Laboratory	
Week 14	Theoretical	Heat and temperature, thermometers.
	Practice	
	Laboratory	
Week 15	Theoretical	Expansion, heat conduction modes.
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
OC2	3	0	0	0	0	0	0	0	0	0	0	0	0	0
OC3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
OC4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
OC5	3	0	0	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Social Responsibility		
Course Code	MTK 1102	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	1
Hours Per Week	1	ECTS	1
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

In this course, students will learn about social responsibility concept, purpose and importance; The development of social responsibility in society; Civil society organizations and their places in social responsibility, social responsibility projects in the world and in Turkey.

The Aim of Course

It is expected from students to1. identify environmental problems like social, natural, cultural and so on. 2. to develop interdisciplinary cooperation for the solution of the problem,3. Continuity without compromising the process objective,4. to share their results with the public.

Learning Outcomes

1. To be able to identify problems that concern social life.
2. To be able to produce solutions and projects to existing problems.
3. To be able to make interdisciplinary studies.
4. To be able to take responsibility in the social field.

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Course Content

Week	Topic	Content
Week 1	Theoretical	Social Responsibility Concept, aim and importance
	Practice	
	Laboratory	
Week 2	Theoretical	History of Social Responsibility
	Practice	
	Laboratory	
Week 3	Theoretical	Development of Social Responsibility
	Practice	
	Laboratory	
	Theoretical	Relationship between community and social responsibility

Week 4	Practice	
	Laboratory	
Week 5	Theoretical	Relationship between individual and social responsibility
	Practice	
	Laboratory	
Week 6	Theoretical	Concept of social responsibility on the basis of occupationsDefinition, mission and
	Practice	
	Laboratory	
Week 7	Theoretical	Midterm-exam
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm-exam
	Practice	
	Laboratory	
Week 9	Theoretical	Civil society organizations' place in social responsibility projectsmidterm
	Practice	
	Laboratory	
Week 10	Theoretical	Social responsibility projects in the world and Turkey
	Practice	
	Laboratory	
Week 11	Theoretical	Phantasmal phases of social responsibility projects
	Practice	
	Laboratory	
Week 12	Theoretical	Identification of stıdent projects
	Practice	
	Laboratory	
Week 13	Theoretical	
	Practice	Project presentations
	Laboratory	
Week 14	Theoretical	
	Practice	Project presentations
	Laboratory	
Week 15	Theoretical	Overview
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
OC2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
OC3	0	0	0	0	0	0	2	0	0	0	0	0	0	0
OC4	0	0	0	0	0	0	2	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Mathematics 2		
Course Code	MTK 1114	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	2
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Exponential functionsDefinition of exponential functionsLogarithmDefinition of logarithmLimitDefinition of Limit Definition of continuityDerivativeDefinition of derivativeIntegralDefinition of Integral

The Aim of Course

In this course, students will gain the qualifications to apply mathematical skills in their professions which is related to exponential functions and logarithms, limits and continuity, derivative and integral.

Learning Outcomes

1. To be able to applications related to exponential functions and logartihms in their profession
2. To be able to applications related to limit and continuity in their profession
3. To be able to applications related to derivatives in their profession
4. To be able to applications related to integral in their profession
5. To be able to the calculation of Areas of planar regions by means of integral

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Calculus, Howard Anton, Irl C. Bivens, Stephen Davis, Wiley

Course Content

Week	Topic	Content
Week 1	Theoretical	Exponential functions
	Practice	
	Laboratory	
Week 2	Theoretical	exponential functions and logarithms
	Practice	
	Laboratory	
Week 3	Theoretical	logarithms
	Practice	
	Laboratory	
Week 4	Theoretical	limit
	Practice	

	Laboratory	
Week 5	Theoretical	limit and continuity
	Practice	
	Laboratory	
Week 6	Theoretical	continuity
	Practice	
	Laboratory	
Week 7	Theoretical	derivative
	Practice	
	Laboratory	
Week 8	Theoretical	derivative
	Practice	
	Laboratory	
Week 9	Theoretical	midterm
	Practice	
	Laboratory	
Week 10	Theoretical	derivative
	Practice	
	Laboratory	
Week 11	Theoretical	integral
	Practice	
	Laboratory	
Week 12	Theoretical	integral
	Practice	
	Laboratory	
Week 13	Theoretical	integral
	Practice	
	Laboratory	
Week 14	Theoretical	integral
	Practice	
	Laboratory	
Week 15	Theoretical	integral
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
OC2	0	0	0	0	0	0	0	0	0	0	0	0	2	0
OC3	0	0	0	0	0	0	0	0	0	0	0	0	2	0
OC4	0	0	0	0	0	0	0	0	0	0	0	0	2	0
OC5	0	0	0	0	0	0	0	0	0	0	0	0	2	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Micro Controllers		
Course Code	MTK 1112	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	4
Hours Per Week	3	ECTS	6
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Advanced microcontroller architecture, peripheral devices (ADC,DAC,PWM,POR,TIC,EEPROM, SPI) and synchronous and asynchronous communication, Multi-processor network.Industrial application examplesVarious peripheral examplesProject development and implementing a real system

The Aim of Course

Providing basics of Advanced Microcontroller architecture and its peripheral devices, different interrupt resource usage, developing problem solving algorithms, improving the ability of multi-processor communication realization.

Learning Outcomes

1. To be able to comprehension of advanced microcontroller architecture
2. To be able to use new peripheral device
3. To be able t comprehend code security
4. To be able to improve ability of using the different interrupt resource
5. To be able to improve the problem solving algorithms
6. To be able to build synchronous asynchronous serial communication and Multi-processor network

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Arduino Coşkun Taşdemir Dikey eksen publishing 2011

Course Content

Week	Topic	Content
Week 1	Theoretical	Advanced microcontrollers architecture (ADUC841, intel-8051 based)
	Practice	
	Laboratory	
Week 2	Theoretical	Analog-Digital converter and their modes (ADC)
	Practice	
	Laboratory	
Week 3	Theoretical	Digital-Analog converter (DAC)
	Practice	
	Laboratory	

Week 4	Theoretical	Pulse width modulation peripheral device and their modes (PWM)
	Practice	
	Laboratory	
Week 5	Theoretical	Watchdog timer and software security
	Practice	
	Laboratory	
Week 6	Theoretical	Internal data memory and EEPROM usage
	Practice	
	Laboratory	
Week 7	Theoretical	Microcontroller programming in C
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	Serial communication
	Practice	
	Laboratory	
Week 10	Theoretical	Serial communication
	Practice	
	Laboratory	
Week 11	Theoretical	Interrupt based programming
	Practice	
	Laboratory	
Week 12	Theoretical	
	Practice	ADC and DAC applications
	Laboratory	
Week 13	Theoretical	
	Practice	Step motor applications
	Laboratory	
Week 14	Theoretical	
	Practice	LCD display applications
	Laboratory	
Week 15	Theoretical	
	Practice	Timer and counter applications
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	4	0	0	0	4	0	0	0
OC2	0	0	0	4	0	0	3	0	0	0	4	0	0	0
OC3	0	0	0	4	0	0	4	0	0	0	5	0	0	0
OC4	0	0	0	3	0	0	4	0	0	0	4	0	0	0
OC5	0	0	0	5	0	0	3	0	0	0	3	0	0	0
OC6	0	0	0	4	0	0	3	0	0	0	3	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Material Technologies		
Course Code	MTK 1132	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

A. The materials used in the technical field B. Atomic structure and bond strengths C. Solidification - the melting behaviour D. Iron - Carbon equilibrium diagram E. Destructive tests F. Polymers G. Composites H. Non-destructive testing methods İ. The heat treatment methods J. Methods of surface hardening K. Corrosion and Corrosion Protection.

The Aim of Course

To know the different versions of materials used in the industrial field, understand the basic features,To give an ability to choose the most suitable materials for the design.

Learning Outcomes

1. To be able to choose Materials.
2. To be able to make enabling examination of the material.
3. To be able to explain the mechanical properties of materials.
4. To be able to apply a materials technology in the field of mechatronics.

Evaluation Criteria

Vize (%40) Ödev (%10) Final (%50)

Recommended or Required Reading

1- KAYALI, E. SABRİ; ENSARİ, CAHİT; DİKEÇ, FERİDUN " Metallic Mechanical Experiments of Materials" I.T.U. 19782- ONARAN, Kaşif "Material science" Bilim Teknik Publisher 19993- WEISSBACH, WOLFGANG (ANIK, SELAHADDİN, E.SABRİ; VURAL,MURAT)"Material Information and Examination" Birsen Publisher 19984- T. NEJDET, "Introduction to Materials Science", Arpaz Publisher, 19835- M.Y. GÜRLEYİK, "Material Information and Examination", KTU, 19886- Savaşkan, Temel, "Material Information and Examination", Derya Publisher, 2000, Trabzon.

Course Content

Week	Topic	Content
Week 1	Theoretical	The materials used in the technical field.
	Practice	
	Laboratory	
Week 2	Theoretical	Atomic structure and bonding forces, the crystal structures.
	Practice	
	Laboratory	

Week 3	Theoretical	Solidification - the melting behaviour.
	Practice	
	Laboratory	
Week 4	Theoretical	Iron - Carbon equilibrium diagram.
	Practice	
	Laboratory	
Week 5	Theoretical	Destructive testing (Hardness measurement methods, Tensile test, Compression test).
	Practice	
	Laboratory	
Week 6	Theoretical	Destructive testing (Bending test, The notch impact test, Fatigue test).
	Practice	
	Laboratory	
Week 7	Theoretical	Polymers, composites.
	Practice	
	Laboratory	
Week 8	Theoretical	Non-destructive testing methods (Liquid penetrant inspection, Magnetic powder testing,
	Practice	
	Laboratory	
Week 9	Theoretical	Examination-Midterms
	Practice	
	Laboratory	
Week 10	Theoretical	Non-destructive testing methods (Radiography, Radioscopy, Ultrasonic inspection).
	Practice	
	Laboratory	
Week 11	Theoretical	The heat treatment methods.
	Practice	
	Laboratory	
Week 12	Theoretical	Methods of surface hardening.
	Practice	
	Laboratory	
Week 13	Theoretical	Corrosion.
	Practice	
	Laboratory	
Week 14	Theoretical	Prevention of corrosion.
	Practice	
	Laboratory	
Week 15	Theoretical	Repeat
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	3	0	0	0	0	0	0	0	3	0
OC2	3	0	0	0	3	0	0	0	0	0	0	0	3	0
OC3	3	0	0	0	3	0	0	0	0	0	0	0	3	0
OC4	3	0	0	0	3	0	0	0	0	0	0	0	3	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Hydraulic Pneumatic		
Course Code	MTK 1152	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	4
Hours Per Week	3	ECTS	6
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Basic principles of hydraulics, Hydraulic elements (components) and circuits, Electro-hydraulics circuits, Basic principles of Pneumatic, Pneumatic elements (components) and circuits, Electro-pneumatic circuits

The Aim of Course

Comprehend basic concepts of fluid mechanics, hydrostatics and hydrodynamics. Comprehend operational principles of hydraulic and pneumatic control systems, and set up these control circuits. Set up a hydraulic, electro-hydraulic and pneumatic, electro-pneumatic circuit due to the desired criteria. Maintenance and repair of machine tools to gain relevant qualifications.

Learning Outcomes

1. To be able to draw A hydraulic circuit diagram and understand the basic elements
2. To be able to know and explain the examples of electro-hydraulic components
3. To be able to draw A pneumatic circuit diagram with symbols in order to show the basic elements of compressor, receiver, unloading valves, control valves and pneumatic piston or engine.
4. To be able to find the pneumatic components of machines working with pneumatic systems and explains the working system.

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1.Denktaş, M., Hidrolik ve Pnömatik Sistemler, Lisans Yayıncılık2.Karacan İ., Hidrolik ve pnömatik., Simav3.Küçük M., Hidrolik Pnömatik., Milli Eğitim Bakanlığı Yayınları., 4. Güç Hidroliği, Milli Eğitim Bakanlığı Yayınları.,5. Hidrolik arıza arama becerisini geliştirme, Milli Eğitim Bakanlığı Yayınları.,6. Pnömatik arıza arama becerisini geliştirme, Milli Eğitim Bakanlığı Yayınları.

Course Content

Week	Topic	Content
Week 1	Theoretical	To understand the hydraulic circuit components
	Practice	
	Laboratory	
Week 2	Theoretical	To teach hydraulic circuits operating principles
	Practice	
	Laboratory	

Week 3	Theoretical	
	Practice	
	Laboratory	To create hydraulic circuit diagram
Week 4	Theoretical	
	Practice	Establish Hydraulic circuit and run
	Laboratory	
Week 5	Theoretical	
	Practice	Hydraulic circuit applications make
	Laboratory	
Week 6	Theoretical	To understand the electro-hydraulic circuit components
	Practice	
	Laboratory	To create electro-hydraulic circuit diagram
Week 7	Theoretical	
	Practice	To make electro-hydraulic circuit applications
	Laboratory	
Week 8	Theoretical	To understand the pneumatic circuit components
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	To teach pneumatic circuits operating principles
	Practice	
	Laboratory	
Week 11	Theoretical	
	Practice	
	Laboratory	Designing pneumatic circuits and drawing
Week 12	Theoretical	
	Practice	Establish pneumatic circuit and run
	Laboratory	
Week 13	Theoretical	
	Practice	Pneumatic circuit applications make
	Laboratory	
Week 14	Theoretical	To understand the electro-pneumatic circuit components
	Practice	
	Laboratory	To create electro-pneumatic circuit diagram
Week 15	Theoretical	
	Practice	To make electro-pneumatic circuit applications
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	2	0	0	3	0	0	0	0	0	0	0	0	0	5
OC2	2	0	0	2	0	0	0	0	0	0	0	0	0	5
OC3	2	0	0	2	0	0	0	0	0	0	0	0	0	5
OC4	2	0	0	2	0	0	0	0	0	0	0	0	0	5

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Electronics 2		
Course Code	MTK 1162	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Thyristors, Thyristor Trigger Circuits, Triac and Diac, Mosfets, Single Phase Controlled and Uncontrolled Rectifier Circuits, Three Phase Controlled and Uncontrolled Rectifier Circuits, Single Phase and Three Phase AA Choppers, Current and Voltage Supply Inverters.

The Aim of Course

In this course, to be aimed to gain knowledge and skills about semi-conductor switching elements, rectifier and chopper circuit

Learning Outcomes

1. To be able to select a semiconductor switching elements
2. To be able to set up single-phase rectifier circuits
3. To be able to set up a three-phase rectifier circuits
4. To be able to set up chopper circuits
5. To be able to set up the inverter and the frequency converter circuits

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

[1] Power Electronics, Mohan,Undeland, Robbins, Translation: Nejat Tuncay, Metin Gökaşan, Seta Boğosyan, Literatür Publications, Edition 1 September 2003.[2] Modern Power Electronics and Drivers, Bimal K. Bose, Prentice Hall PTR.[3] Power Electronics, Associate Professor. Osman Gürdal, Nobel Release Distribution, Edition 2 2000 [4] Power Electronic Control of AC Motors, JMD Murphy&FG Turnbull, Pergamon Pres, 1988.

Course Content

Week	Topic	Content
Week 1	Theoretical	Thyristor
	Practice	
	Laboratory	
Week 2	Theoretical	Thyristor driving circuits
	Practice	
	Laboratory	
Week 3	Theoretical	Triac,diac, mosfet
	Practice	

	Laboratory	
Week 4	Theoretical	IGBT
	Practice	
	Laboratory	
Week 5	Theoretical	Single-phase full wave uncontrolled rectifiers
	Practice	
	Laboratory	
Week 6	Theoretical	Three-phase full wave uncontrolled rectifiers
	Practice	
	Laboratory	
Week 7	Theoretical	Three-phase full wave controlled rectifiers
	Practice	
	Laboratory	
Week 8	Theoretical	Single-phase AA chopper circuit
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	Three-phase AA chopper circuit
	Practice	
	Laboratory	
Week 11	Theoretical	Buck and boost choppers
	Practice	
	Laboratory	
Week 12	Theoretical	Current-fed inverter
	Practice	
	Laboratory	
Week 13	Theoretical	Voltage-fed inverter
	Practice	
	Laboratory	
Week 14	Theoretical	Voltage-fed inverter
	Practice	
	Laboratory	
Week 15	Theoretical	Voltage-fed inverter
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	4	0	0	0	4	0	0	0
OC2	0	0	0	4	0	0	3	0	0	0	3	0	0	0
OC3	0	0	0	5	0	0	4	0	0	0	4	0	0	0
OC4	0	0	0	3	0	0	4	0	0	0	4	0	0	0
OC5	0	0	0	3	0	0	4	0	0	0	4	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Circuit Analysis 2		
Course Code	MTK 1172	Activity Type	Compulsory
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Static electric.Taking precautions against unforeseen effects of electric current. Physical and electrical definitions of resistance, Ohm's law. Ideal and real current and voltage sources. DC current circuit solutions. Electrical footprint of work, power, energy and efficiency. Equation derivation for and from meshed circuits for loop current, branch current and node voltage solving methods. Superposition, Thevenin's and Norton's theorems. Maximum power transfer theorem. Electrical and physical properties of capacitance and inductance as energy storing devices and their behaviors in series and paralel connections.

The Aim of Course

In this course, to be implement the principles of the electric current and to be make solutions of all the direct current electrical circuits qualifications are aimed to gain.

Learning Outcomes

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Direct Current Circuits Analysis, Abdullah Görkem, Metin Kuş, Özkan Printing Industry, Ankara, 2004.

Course Content

Week	Topic	Content
Week 1	Theoretical	Static electric.Taking precautions against unforeseen effects of electric current.
	Practice	
	Laboratory	
Week 2	Theoretical	Physical and electrical definitions of resistance, Ohm's law.
	Practice	
	Laboratory	
Week 3	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.
	Practice	
	Laboratory	
	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.

Week 4	Practice	DC current serial, paralel and serial-parallel circuit solutions.
	Laboratory	Measuring laboratory
Week 5	Theoretical	DC current serial, paralel and serial-parallel circuit solutions.
	Practice	DC current serial, paralel and serial-parallel circuit solutions.
	Laboratory	Measuring laboratory
Week 6	Theoretical	Electrical footprint of work, power, energy and efficiency.
	Practice	Electrical footprint of work, power, energy and efficiency.
	Laboratory	Measuring laboratory
Week 7	Theoretical	Equation derivation for and from meshed circuits for loop current and branch current
	Practice	
	Laboratory	
Week 8	Theoretical	Loop current and node voltage solving methods
	Practice	Loop current and node voltage solving methods
	Laboratory	Measuring laboratory
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	Superposition theorem.
	Practice	Superposition theorem.
	Laboratory	Measuring laboratory
Week 11	Theoretical	Thevenin's and Norton's theorems. Maximum power transfer theorem.
	Practice	Thevenin's and Norton's theorems. Maximum power transfer theorem.
	Laboratory	Measuring laboratory
Week 12	Theoretical	Direct current solution methods
	Practice	Direct current solution methods
	Laboratory	Measuring laboratory
Week 13	Theoretical	Maximum power transfer theorem.
	Practice	Maximum power transfer theorem.
	Laboratory	Measuring laboratory
Week 14	Theoretical	Electrical and physical properties of capacitance and inductance as energy storing devices
	Practice	
	Laboratory	
Week 15	Theoretical	Electrical and physical properties of capacitance and inductance as energy storing devices
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	3	0	0	5	0	0	0	5	0	0	0
OC2	0	0	0	5	0	0	4	0	0	0	4	0	0	0
OC3	0	0	0	4	0	0	3	0	0	0	4	0	0	0
OC4	0	0	0	4	0	0	4	0	0	0	4	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Entrepreneurship and Business Management		
Course Code	MTK 1020	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Testing of entrepreneurial characteristics, business idea development and creativity exercises, business plan concept and items (market research, marketing plan, production plan, production plan, management plan, financial plan), Workshop studies to consolidate business plan items, Writing and presentation of the business plan.

The Aim of Course

This course enables to gain the key factors for the students who will be engaged to work in private sector, and also entrepreneurial cultures to those who have the potential to work. It is aimed that the students who have the potential of entrepreneurship are able to use and develop these features. Examination of the examples and creation of new ideas, legal, financial, economical evaluation of entrepreneurship will increase the motivation of the students.

Learning Outcomes

1. To be able to question the characteristics of his own entrepreneurship from the characteristics of entrepreneurship
2. To be able to compare the activities related to types of entrepreneurship
3. To be able to develop his own entrepreneurship characteristics by evaluating entrepreneurship traits of successful entrepreneurship
4. To be able to comprehend opportunities for the appropriate sector by learning about the obstacles and incentives in entrepreneurship
5. To be able to structure the career plan as an entrepreneur by taking examples of successful entrepreneurship

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1. Yavuz Odabaşı (editor), Entrepreneurship, Anadolu University Publishing no: 1567, 2004.2. Tamer Müftüoğlu and Tülin Durukan,Entrepreneurship and Small and Medium Sized Enterprises, Gazi Book store, 20043. Semra Arıkan, Entrepreneurship: Basic Concepts and Some current issues, Siyasal Bookstore, 2002.4. R. Hisrich, Michael Peters ve Dean Shepherd, Entrepreneurship, McGraw Hill, Fourth Edition, 2006.5. G. Yukl, Leadership in Organizations, Prentice Hall, 20066. Leaders and the Leadership Process Readings, Self-Assessments, and Applications, Pierce, McGraw Hill, 2003 7. P.Lambing ve C.Kuehl, Entrepreneurship, Prentice Hall, 4. Edition, 2007. ISBN: 0-13-228174-0.

Course Content

Week	Topic	Content
	Theoretical	Basic concepts of entrepreneurship and entrepreneurshipFactors affecting

Week 1	Practice	
	Laboratory	
Week 2	Theoretical	Testing of entrepreneurship features, business idea development and creativity exercises
	Practice	
	Laboratory	
Week 3	Theoretical	Responsible entrepreneurship concept and sharing of experience
	Practice	
	Laboratory	
Week 4	Theoretical	Business concept, business functions
	Practice	
	Laboratory	
Week 5	Theoretical	Types of businesses, types of organizations
	Practice	
	Laboratory	
Week 6	Theoretical	Financial and legal responsibilities Business plan concept and items (Market research,
	Practice	
	Laboratory	
Week 7	Theoretical	Financial and legal responsibilities Business plan concept and items (Market research,
	Practice	
	Laboratory	
Week 8	Theoretical	Mid-term Exam
	Practice	
	Laboratory	
Week 9	Theoretical	Business plan concept and items (Production plan)
	Practice	
	Laboratory	
Week 10	Theoretical	Business plan concept and items (Management plan)
	Practice	
	Laboratory	
Week 11	Theoretical	Business plan concept and items (Financial Plan)
	Practice	
	Laboratory	
Week 12	Theoretical	Workshop studies on business model and business plan (Market research, Marketing
	Practice	
	Laboratory	
Week 13	Theoretical	Workshop studies on business model and work plan (Production plan)
	Practice	
	Laboratory	
Week 14	Theoretical	Workshop studies on business model and work plan (management plan)
	Practice	
	Laboratory	
Week 15	Theoretical	Workshop studies on business model and business plan (Financial plan)
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	2	0	0	4	0	0	0	0	0	0
OC2	0	0	0	0	2	0	0	4	0	0	0	0	0	0
OC3	0	0	0	0	2	0	0	4	0	0	0	0	0	0
OC4	0	0	0	0	2	0	0	4	0	0	0	0	0	0
OC5	0	0	0	0	2	0	0	4	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Mobile Application Development		
Course Code	MTK 1022	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

To install and adjust a visual programming language, forms and their properties, standart objects, input and message windows, dialog windows, advanced objects, operators, functions, decision structures and loops, arrays, graphics applications, reports

The Aim of Course

To install and use a visual programming language. To identify the visual programming interface. To distinguish between the object-oriented programming and the structrual programming. To use basic components and design visually.To use properties of objects and events. To use variables, control statements, and loops. To understand and to use terms and definitions about class and object concepts after using objective language

Learning Outcomes

1. To be able to installing and adjusting a visual programming language editor.
2. To be able to working with forms
3. To be able to making basic applications
4. To be able to making advanced applications

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Görsel Programlama Visual Basic, Ebru Yeniman Yıldırım, 2007Görsel Programlama:Visual Basic İle Programlama, Gülser A. Dondurmacı, 2003Visual Basic ile Programlama (1.cilt)/ Görsel Programlamanın Temelleri, Memik Yanık, 2004

Course Content

Week	Topic	Content
Week 1	Theoretical	Installing and adjusting the Visual Basic programming language editör
	Practice	
	Laboratory	
Week 2	Theoretical	Forms and their properties
	Practice	
	Laboratory	
Week 3	Theoretical	Standart objects
	Practice	

	Laboratory	
Week 4	Theoretical	Input and message Windows
	Practice	
	Laboratory	
Week 5	Theoretical	Dialog Windows
	Practice	
	Laboratory	
Week 6	Theoretical	Advanced objects
	Practice	
	Laboratory	
Week 7	Theoretical	Operators
	Practice	
	Laboratory	
Week 8	Theoretical	Mid-term exam
	Practice	
	Laboratory	
Week 9	Theoretical	Functions
	Practice	
	Laboratory	
Week 10	Theoretical	Decision structures and loops
	Practice	
	Laboratory	
Week 11	Theoretical	Decision structures and loops
	Practice	
	Laboratory	
Week 12	Theoretical	Arrays
	Practice	
	Laboratory	
Week 13	Theoretical	Graphics applications
	Practice	
	Laboratory	
Week 14	Theoretical	Reports
	Practice	
	Laboratory	
Week 15	Theoretical	Reports
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	3	4	4	3	2	2	3	2	2	0	0	0	0
OC2	4	4	4	5	4	4	1	1	2	2	0	0	0	0
OC3	3	4	5	5	5	4	4	2	2	2	0	0	0	0
OC4	5	5	5	5	5	5	3	2	2	2	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Technology Management		
Course Code	MTK 1024	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Create value from science and technology. Critical factors in technology management. Sources and types of the innovations. Case analysis on innovation. Technology and competitiveness of the company. Basic competences and technology life cycle. The commercialitaiton of the tehnology. Technology stratey. Technology planning. Technology transfer. Green technology management. National innovation systems.

The Aim of Course

To introduce methods and models which are used in technology management at comprehensive and interpretive level.

Learning Outcomes

1. To be able to improve knowledge and faculty continously to adabt the rapidly changing techonological environment and to find methods improving existing information
2. To be able to express his ideas and findings effectively either oral or written as regards the subject of the research
3. To be able to define the advanced level strategy science concept
4. To be able to explain the general definitions, terms and principals which are used in technology menagement

Evaluation Criteria

Vize (%20) Ödev (%30) Final (%50)

Recommended or Required Reading

1. Robert C. Megantz, Technology Management: Developing and Implementing Effective Licensing Programs, 2002, Wiley. 2. M. V. Zedtwitz, G. Haour, T. Khalil, Management of Technology, 2003, Pergamon Press. 3. Joseph Tidd, Joe Tidd (Ed.), From Knowledge Management to Strategic Competence: Measuring Technological, Market and Organizational Innovation (Technology Management), 2000, Imperial College Press. 4. Schilling, Strategic Management of Technological Innovation, 2009, McGraw-Hill. 5. Brown, C.V., DeHayes, D.W., Hoffer, J.A. & Martin, W.E., Managing Information Technology, 2011, Prentice Hall. 6. Betz, F. Managing Technological Innovation: Competitive Advantage from Change, 2011, John Wiley & Sons.

Course Content

Week	Topic	Content
Week 1	Theoretical	Introduction
	Practice	
	Laboratory	
Week 2	Theoretical	Create value from science and technology
	Practice	

	Laboratory	
Week 3	Theoretical	Create value from science and technology
	Practice	
	Laboratory	
Week 4	Theoretical	Critical factors in technology management
	Practice	
	Laboratory	
Week 5	Theoretical	Sources and types of the innovations
	Practice	
	Laboratory	
Week 6	Theoretical	Case analysis on innovation
	Practice	
	Laboratory	
Week 7	Theoretical	Technology and competitiveness of the company
	Practice	
	Laboratory	
Week 8	Theoretical	Basic competences and technology life cycle
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	Commercialization of technology
	Practice	
	Laboratory	
Week 11	Theoretical	Commercialization of technology
	Practice	
	Laboratory	
Week 12	Theoretical	Technology strategy
	Practice	
	Laboratory	
Week 13	Theoretical	Technology planning
	Practice	
	Laboratory	
Week 14	Theoretical	Technology transfer
	Practice	
	Laboratory	
Week 15	Theoretical	Green technology management
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	2	0	0	0	3	0	0	0	0	0	0	0	0	0
OC2	2	0	0	0	2	0	0	0	0	0	0	0	0	0
OC3	2	0	0	0	2	0	0	0	0	0	0	0	0	0
OC4	2	0	0	0	3	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Innovation Management		
Course Code	MTK 1026	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The basic concepts of and innovation , Innovation types, Innovation process, Introduction to the practices for enhancing innovation performance in organizational contexts, Individual characteristics, qualities and the new idea development process Social environment, group structure and group processes for supporting innovation, Organizational structure for supporting innovation, Organizational strategies for supporting innovation, Top management leadership and the supportive leadership types, Organizational culture and organizational climate for supporting innovation, Knowledge management practices for enhancing innovation, Human resource management practices for enhancing innovation, Organizational blocks to innovation Case studies, success stories, in-class discussions and suggestions for solutions,

The Aim of Course

The purpose of this course is to build a theoretical knowledge related to how to design organizations for enhancing firms' innovation performance; to learn methods for enhancing employee creativity and group creativity, and to develop skills necessary for effectively realizing organizational settings for enhancing employee creativity and firms' innovation performance.

Learning Outcomes

1. to be able to describe the basic concepts of innovation
2. to be able to understand and describe innovation types and innovation process
3. to be able to understand and describe the factors for promoting innovation in organizational contexts
4. to be able to develop an understanding of the importance of employee creativity
5. to be able to develop a basic knowledge on the structure and processes for promoting group creativity and innovation in organizational contexts
6. to be able to understand the structure, system, process, and practices that are necessary for innovation in organizational contexts
7. to be able to understand and describe organizational blocks to innovation

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Textbooks, articles, and/or materials about innovation management and related web resources are suggested.

Course Content

Week	Topic	Content

Week 1	Theoretical	The basic concepts of and innovation
	Practice	
	Laboratory	
Week 2	Theoretical	Innovation types
	Practice	
	Laboratory	
Week 3	Theoretical	Innovation process
	Practice	
	Laboratory	
Week 4	Theoretical	Introduction to the practices for enhancing innovation performance in organizational
	Practice	
	Laboratory	
Week 5	Theoretical	Individual characteristics, qualities and the new idea development process
	Practice	
	Laboratory	
Week 6	Theoretical	Social environment, group structure and group processes for supporting innovation
	Practice	
	Laboratory	
Week 7	Theoretical	Organizational structure for supporting innovation
	Practice	
	Laboratory	
Week 8	Theoretical	Mid term exam
	Practice	
	Laboratory	
Week 9	Theoretical	Organizational strategies for supporting innovation
	Practice	
	Laboratory	
Week 10	Theoretical	Top management leadership and the supportive leadership types
	Practice	
	Laboratory	
Week 11	Theoretical	Organizational culture and organizational climate for supporting innovation
	Practice	
	Laboratory	
Week 12	Theoretical	Knowledge management practices for enhancing innovation
	Practice	
	Laboratory	
Week 13	Theoretical	Human resource management practices for enhancing innovation
	Practice	
	Laboratory	
Week 14	Theoretical	Organizational blocks to innovation
	Practice	
	Laboratory	
Week 15	Theoretical	Case studies, success stories, in-class discussions and suggestions for solutions
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	2	0	0	0	0	0	0	3	0	0	0	0	0	0
OC2	2	0	0	0	0	0	0	3	0	0	0	0	0	0
OC3	3	0	0	0	0	0	0	3	0	0	0	0	0	0
OC4	2	0	0	0	0	0	0	4	0	0	0	0	0	0
OC5	2	0	0	0	0	0	0	5	0	0	0	0	0	0
OC6	2	0	0	0	0	0	0	5	0	0	0	0	0	0

OC7	2	0	0	0	0	0	0	5	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Career Planning		
Course Code	MTK1028	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The Aim of Course

Learning Outcomes

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Course Content

Week	Topic	Content
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	

	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	3	0	5	0	0	0	0	0	0
OC2	0	0	0	0	0	3	0	5	0	0	0	0	0	0
OC3	0	0	0	0	0	3	0	5	0	0	0	0	0	0
OC4	0	0	0	0	0	3	0	5	0	0	0	0	0	0
OC5	0	0	0	0	0	3	0	5	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Advanced Manufacturing Methods		
Course Code	MTK 1030	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Main Properties Of Traditional And Non-Traditional Machining Processes Differences Between Traditional And Non-Traditional Machining Processes And Classification Of Non-Traditional Machining Processes Abrasive Jet Machining (AJM) Ultrasonic Machining (USM) Water-Jet Machining (WJM) Abrasive Water-Jet Machining (AWJM)Electrochemical Machining (ECM), Electrochemical Grinding (ECD) And Electro Jet Machining (EJM) Electrical-Discharge Machining (EDM) Midterm Exam Wire Electrical-Discharge Machining (WEDM) Laser-Beam Machining (LBM), Electron-Beam Machining (EBM) Chemical Machining And Photochemical Machining, Rapid Prototyping

The Aim of Course

The purpose of this course is to give theoretical knowledge about Classify different non-traditional machining processes , Describe the basic mechanism of material removal in non-traditional machining processes and Applications and limitations of non-traditional machining processes . In this course, using of these techniques in industry are also taught by giving examples.

Learning Outcomes

1. To be able to comprehend the properties of traditional and special manufacturing methods
2. To be able to Understand the differences between traditional and special manufacturing methods
3. To be able to identify situations that need special manufacturing methods.
4. To be able to apply working principles in special manufacturing methods.
5. To be able to understand the applications and limitations of special manufacturing methods.

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Lecure Notes. MODERN MANUFACTURES / Fundamentals of Modern Manufacturing: Materials, Processes, and Systems Author (s) Mikell GROOVER, Murat VURAL, Turgut GÜLMEZ

Course Content

Week	Topic	Content
Week 1	Theoretical	Main Properties Of Traditional And Non-Traditional Machining Processes
	Practice	
	Laboratory	

Week 2	Theoretical	Differences Between Traditional And Non-Traditional Machining Processes And
	Practice	
	Laboratory	
Week 3	Theoretical	Abrasive Jet Machining (AJM)
	Practice	
	Laboratory	
Week 4	Theoretical	Ultrasonic Machining (USM)
	Practice	
	Laboratory	
Week 5	Theoretical	Water-Jet Machining (WJM)
	Practice	
	Laboratory	
Week 6	Theoretical	Abrasive Water-Jet Machining (AWJM) Electrochemical Machining (ECM),
	Practice	
	Laboratory	
Week 7	Theoretical	Abrasive Water-Jet Machining (AWJM) Electrochemical Machining (ECM),
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm Exam
	Practice	
	Laboratory	
Week 9	Theoretical	Electrical-Discharge Machining (EDM)
	Practice	
	Laboratory	
Week 10	Theoretical	Wire Electrical-Discharge Machining (WEDM)
	Practice	
	Laboratory	
Week 11	Theoretical	Laser-Beam Machining (LBM), Electron-Beam Machining (EBM)
	Practice	
	Laboratory	
Week 12	Theoretical	Chemical Machining And Photochemical Machining, Rapid Prototyping
	Practice	
	Laboratory	
Week 13	Theoretical	Assignment control
	Practice	
	Laboratory	
Week 14	Theoretical	Assignment control
	Practice	
	Laboratory	
Week 15	Theoretical	Overview
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC2	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC3	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC4	3	0	0	0	3	0	0	0	0	0	0	0	0	0
OC5	3	0	0	0	3	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Control Systems		
Course Code	MTK 1032	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Control systemsOpen Loop ControlClosed Loop ControlPID Control

The Aim of Course

The purpose of this course to be able to gain qualifications of open loop, closed loop and proportional-integral-derivative(PID) control systems.

Learning Outcomes

1. To be able to know control systems
2. To be able to interpret the basic principles and properties of control processes
3. To be able to comprehend open and closed loop control systems
4. To be able to implement and apply control systems circuits

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1) Automatic Control-System Dynamics and Control SystemsAuthor: Prof.Dr. İbrahim Yüksel2) Solved Automatic Control ProblemsAuthors: İbrahim Yüksel-Mesut Şengirgin-Gürsel Şefkat3) Automatic Control Systems, Benjamin C. KUO, Çeviren: Prof. Dr. Atilla BİR

Course Content

Week	Topic	Content
Week 1	Theoretical	Control systems
	Practice	
	Laboratory	
Week 2	Theoretical	Open loop control systems
	Practice	
	Laboratory	
Week 3	Theoretical	Application of open loop control system
	Practice	Application of open loop control system
	Laboratory	laboratory
Week 4	Theoretical	Closed loop control systems
	Practice	Closed loop control systems

	Laboratory	laboratory
Week 5	Theoretical	Display of control systems with block diagrams
	Practice	
	Laboratory	
Week 6	Theoretical	Indication of closed loop control systems with block diagrams
	Practice	
	Laboratory	
Week 7	Theoretical	Creating Simple Mathematical Model in Closed Loop Control Systems
	Practice	
	Laboratory	
Week 8	Theoretical	Transient behavior of systems
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm
	Practice	
	Laboratory	
Week 10	Theoretical	On-off control and applications
	Practice	On-off control and applications
	Laboratory	laboratory
Week 11	Theoretical	Proportional-Integral Control
	Practice	
	Laboratory	
Week 12	Theoretical	Proportional-Derivative Control
	Practice	
	Laboratory	
Week 13	Theoretical	Proportional-integral-derivative (PID) controllers
	Practice	Proportional-integral-derivative (PID) controllers
	Laboratory	laboratory
Week 14	Theoretical	Elimination of persistent state error
	Practice	Elimination of persistent state error
	Laboratory	laboratory
Week 15	Theoretical	Elimination of persistent state error
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	4	5	4	5	4	0	0	0	0	0	0	0	0	0
OC2	5	4	4	5	4	0	0	0	0	0	0	0	0	0
OC3	4	4	5	4	4	0	0	0	0	0	0	0	0	0
OC4	5	4	4	4	5	0	0	0	0	0	0	0	0	0
OC5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Energy Management		
Course Code	MTK 1034	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Energy Definition Energy Resources Energy Management Energy Efficiency Energy Demand Forecast Legislation on Energy Management Regulations on Energy Efficiency

The Aim of Course

In this course, energy management, the definition of energy analysis, energy management systems, energy efficiency, energy sources, energy quality, energy management and efficiency with the relevant regulations-regulations and all related applications, studies to gain competency is intended.

Learning Outcomes

1. Energy Management to make the definition of the relevant legislation and be able to explain
2. Energy Efficiency and related legislation to make the definition to explain.
3. To explain the increase of power quality solutions
4. On energy management and energy efficiency to make applications

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1. Karakoç, H. ve diğerleri. Tanışlı M. Ve Ergün Y. (Editör), (2013), Enerji Yönetimi ve Politikaları. Eskişehir: Anadolu Üniversitesi Yayınları.2. Kaya, D., Öztürk, H.H., (2014), Sanayide Enerji Yönetimi ve Enerji Verimliliği, Umuttepe Yayınları, Kocaeli.3. Özil, E., Şişbot S., Özpınar A., (2013), Elektrik Enerjisi Teknolojileri ve Enerji Verimliliği, TESAB, Ankara.4. http://www.eie.gov.tr/5. www.teias.gov.tr6. www.epdk.gov.tr7. www.emo.org.tr

Course Content

Week	Topic	Content
Week 1	Theoretical	Energy-related definitions, parameters and units. * Energy Sources
	Practice	
	Laboratory	
Week 2	Theoretical	* Overall energy situation in Turkey and in the World * Electrical energy related studies
	Practice	
	Laboratory	
Week 3	Theoretical	* Energy Management * Energy Management related legislation
	Practice	
	Laboratory	

Week 4	Theoretical	* Energy Management Policies and Strategies * Energy Audit
	Practice	
	Laboratory	
Week 5	Theoretical	* Energy Efficiency * Energy Efficiency legislation related to
	Practice	
	Laboratory	
Week 6	Theoretical	* Energy Efficiency * Energy Efficiency legislation related to
	Practice	
	Laboratory	
Week 7	Theoretical	* Energy Demand Forecasting * Energy Demand Forecasting Methods
	Practice	
	Laboratory	
Week 8	Theoretical	* Energy Monitoring
	Practice	
	Laboratory	
Week 9	Theoretical	*Energy efficiency of electrical devices and materials
	Practice	
	Laboratory	
Week 10	Theoretical	* Energy efficiency of electrical devices and materials
	Practice	
	Laboratory	
Week 11	Theoretical	* Energy efficiency of electrical devices and materials
	Practice	
	Laboratory	
Week 12	Theoretical	* The exemplary power management applications
	Practice	
	Laboratory	
Week 13	Theoretical	* The exemplary power management applications
	Practice	
	Laboratory	
Week 14	Theoretical	* The exemplary power management applications n
	Practice	
	Laboratory	
Week 15	Theoretical	* The exemplary power management applications
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	4	0	0	3	0	0	0	3	4	0	0	0	0
OC2	0	4	0	0	0	0	0	0	4	4	0	0	0	0
OC3	0	4	0	2	4	3	3	0	0	3	0	0	0	0
OC4	0	5	0	3	4	4	3	0	0	3	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Electric Power Plants		
Course Code	MTK 1036	Activity Type	Optional
Semester	Spring	Semester	2
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

The Aim of Course

Learning Outcomes

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Course Content

Week	Topic	Content
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	

	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	
Week 0	Theoretical	
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	2	3	0	0	0	3	0	0	0	0	0	0	0	0
OC2	2	3	0	0	0	3	0	0	0	0	0	0	0	0
OC3	2	3	0	0	0	3	0	0	0	0	0	0	0	0
OC4	2	3	0	0	0	3	0	0	0	0	0	0	0	0
OC5	2	3	0	0	0	3	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Electric Motors		
Course Code	MTK 2123	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Principles, structure, characteristic slopes, basic equation of electric engines, Control principles of electric engines, DC engine driving techniques and circuits,AC engine driving techniques and circuits, Step engine and driving circuit

The Aim of Course

Being able to learn structure and properties of electrical motorsand their driver circuits

Learning Outcomes

1. To be able to Comprehending the types of direct current (DC) motors, structures, working principles and characteristics.
2. To be able to Comprehending the types, structures, working principles and characteristics of one phase asynchronous motor.
3. To be able to Comprehending the types, structures, working principles and characteristics of universal motor.
4. To be able to understand the starting methods of asynchronous motors

Evaluation Criteria

Vize (%30) Ödev (%30) Final (%40)

Recommended or Required Reading

1-Altunsaçlı A., Electric Motors And Drivers, Color Publications, 2003, İskenderun, Türkiye2-Ateş M.H., Fundamentals of Electric Machines , Gazi Ü. Publications, 1990 , Ankara, Türkiye3-Altunsaçlı A., Electric Machines 3, Color Publications, 2003, İskenderun, Türkiye

Course Content

Week	Topic	Content
Week 1	Theoretical	DC Motors- Structure and working principle
	Practice	Application about electrical motors.
	Laboratory	
Week 2	Theoretical	Dc Motors- Torque, power, speed, direction of rotation
	Practice	Application about electrical motors.
	Laboratory	
Week 3	Theoretical	Three-phase asynchronous motor- Types, structure and working principle
	Practice	Application about electrical motors.
	Laboratory	

Week 4	Theoretical	Three-phase asynchronous motor- Torque, power, speed, direction of rotation
	Practice	Application about electrical motors.
	Laboratory	
Week 5	Theoretical	Three-phase asynchronous motor- Starting methods
	Practice	Application about electrical motors.
	Laboratory	
Week 6	Theoretical	Single-phase asynchronous motor- Types, structure and working principle
	Practice	Application about electrical motors.
	Laboratory	
Week 7	Theoretical	Universal motor- Types, structure and working principle
	Practice	Application about electrical motors.
	Laboratory	
Week 8	Theoretical	Midterm
	Practice	
	Laboratory	
Week 9	Theoretical	Synchronous motor- Types, structure and working principle
	Practice	Application about electrical motors.
	Laboratory	
Week 10	Theoretical	The basic control principles at the electric motor controls
	Practice	Application about electrical motors.
	Laboratory	
Week 11	Theoretical	Structure and working principle of the DC motor drivers
	Practice	Application about electrical motors.
	Laboratory	
Week 12	Theoretical	Principle of control and position control with micro- processor
	Practice	Application about electrical motors.
	Laboratory	
Week 13	Theoretical	Structure and working principle of the AC motor drivers
	Practice	Application about electrical motors.
	Laboratory	
Week 14	Theoretical	Step motor- Types, structure and working principle
	Practice	Application about electrical motors.
	Laboratory	
Week 15	Theoretical	Drivers of the step motor
	Practice	Application about electrical motors.
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	4	0	1	4	5	5	0	0	0	0	0	0	0
OC2	1	5	0	2	4	5	4	0	0	0	0	0	0	0
OC3	2	5	0	2	5	5	4	0	0	0	0	0	0	0
OC4	1	5	0	2	4	5	3	0	0	0	0	0	0	0
OC5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC6	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Sensors and Transducers		
Course Code	MTK 2125	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

1. temperature Sensors2. temperature Sensors3. humidity Sensors4. Speed Sensors5. vibration Sensors6. acceleration Sensors7. Position Sensors8. Position Sensors9. Proximity Sensors10. Proximity Sensors11. pressure Sensors12. flow Sensors13. level Sensors14. Impulse (Force) Sensors

The Aim of Course

all kinds sensor, use the gain knowledge and skills relevant circuits

Learning Outcomes

1. to be able to set up Temperature and humidity sensors
2. to be able to set up Speed, vibration, acceleration, location, proximity sensors
3. to be able to set up Pressure, flow and level sensors

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

books, notes, software, internet, overhead projector, data show, slide show

Course Content

Week	Topic	Content
Week 1	Theoretical	temperature Sensors
	Practice	
	Laboratory	
Week 2	Theoretical	temperature Sensors
	Practice	
	Laboratory	
Week 3	Theoretical	humidity sensors
	Practice	
	Laboratory	
Week 4	Theoretical	speed sensors
	Practice	
	Laboratory	

Week 5	Theoretical	vibration sensors
	Practice	
	Laboratory	
Week 6	Theoretical	accelerator sensors
	Practice	
	Laboratory	
Week 7	Theoretical	midterm
	Practice	
	Laboratory	
Week 8	Theoretical	position sensors
	Practice	
	Laboratory	
Week 9	Theoretical	Proximity Sensors
	Practice	
	Laboratory	
Week 10	Theoretical	Proximity Sensors
	Practice	
	Laboratory	
Week 11	Theoretical	pressure sensors
	Practice	
	Laboratory	
Week 12	Theoretical	flux sensors
	Practice	
	Laboratory	
Week 13	Theoretical	level Sensors
	Practice	
	Laboratory	
Week 14	Theoretical	force (Impuls) sensors
	Practice	
	Laboratory	
Week 15	Theoretical	Problem Solving
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	4	0	0	0	0	0	0	3	0	0
OC2	4	0	0	0	4	0	0	0	0	0	0	4	0	0
OC3	4	0	0	0	4	0	0	0	0	0	0	4	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Computer Numerical Controlled Machine Tools		
Course Code	MTK 2121	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

To construct solution algorithm of any problem and to develope the program of it with Ms Visual Basic software

The Aim of Course

To construct solution algorithm of any problem and to develope the program of it with a visual programing software

Learning Outcomes

1. To be able to define the concept of numerical control
2. To be able to define numerical controlled machines according to different classification method
3. To be able to make a choice necessary numerical controlled machines according to produced parts
4. To be able to define necessary program codes for computer aided manufacturing
5. To be able to write suitable program for producing part

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Lecture notes, Visual Basic book

Course Content

Week	Topic	Content
Week 1	Theoretical	Problem solving and algorithm development
	Practice	Aplication of the lecture content
	Laboratory	
Week 2	Theoretical	Problem solving and algorithm development
	Practice	Aplication of the lecture content
	Laboratory	
Week 3	Theoretical	Flowsheet drawing, coding, debugging
	Practice	Aplication of the lecture content
	Laboratory	
Week 4	Theoretical	Control and decision sentences
	Practice	Aplication of the lecture content

	Laboratory	
Week 5	Theoretical	Loops and arrays
	Practice	Aplication of the lecture content
	Laboratory	
Week 6	Theoretical	Sub programs and functions
	Practice	Aplication of the lecture content
	Laboratory	
Week 7	Theoretical	Pre defined functions, and usage
	Practice	Aplication of the lecture content
	Laboratory	
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	Sequential and random file construction and usage
	Practice	Aplication of the lecture content
	Laboratory	
Week 10	Theoretical	Sequential and random file construction and usage
	Practice	Aplication of the lecture content
	Laboratory	
Week 11	Theoretical	Index algorithms for random files and indexing
	Practice	Aplication of the lecture content
	Laboratory	
Week 12	Theoretical	Database construction, to connext any database and use tables, records and index files in a
	Practice	Aplication of the lecture content
	Laboratory	
Week 13	Theoretical	Database querying and SQL sentences, recordsets
	Practice	Aplication of the lecture content
	Laboratory	
Week 14	Theoretical	Program aplications
	Practice	Program aplications
	Laboratory	
Week 15	Theoretical	Program aplications
	Practice	Program aplications
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	3	0	0	0	0	0	0	3	0	0	0
OC2	3	0	0	3	0	0	0	0	0	0	3	0	0	0
OC3	3	0	0	3	0	0	0	0	0	0	3	0	0	0
OC4	3	0	0	3	0	0	0	0	0	0	3	0	0	0
OC5	3	0	0	3	0	0	0	0	0	0	3	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Computer Aided Design		
Course Code	MTK 2127	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Computer aided design and introduction to process, machine design process techniques,Presentation of CAD / CAM packages, parts, assemblies, analysis, engineering projectapplications

The Aim of Course

This course is designed for engineering students to understand engineering designIt saves. Students can design a CAD / CAM program for an engineeringlearn how to use it.

Learning Outcomes

1. To be able to learn the mechanical design process
2. To be able to use a CAD / CAM program
3. To be able to learn how to perform an engineering project

Evaluation Criteria

Vize (%20) Ödev (%20) Quiz (%10) Final (%50)

Recommended or Required Reading

AKKURT. M, computer aided machine tools (CNC) and computer aided designand manufacturing (CAD-CAM), Birsen Publishing House, 1996

Course Content

Week	Topic	Content
Week 1	Theoretical	Introduction to Computer Aided Design
	Practice	
	Laboratory	
Week 2	Theoretical	Machine design process techniques
	Practice	
	Laboratory	
Week 3	Theoretical	Machine Design Process techniques. CAD / CAM programs
	Practice	
	Laboratory	
Week 4	Theoretical	Presentation of CAD Program
	Practice	
	Laboratory	

Week 5	Theoretical	Introduction to part design
	Practice	
	Laboratory	
Week 6	Theoretical	Creating an assembly.
	Practice	
	Laboratory	
Week 7	Theoretical	Making analyzes.
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm
	Practice	
	Laboratory	
Week 9	Theoretical	Introduction to computer aided processing. Features of computer controlled benches,types
	Practice	
	Laboratory	
Week 10	Theoretical	Principles of CNC machining center programs.
	Practice	
	Laboratory	
Week 11	Theoretical	ISO (G - Code) system programming techniques.
	Practice	
	Laboratory	
Week 12	Theoretical	Creating an NC program.
	Practice	
	Laboratory	
Week 13	Theoretical	CAM simulations on solid models. NC code analysis.
	Practice	
	Laboratory	
Week 14	Theoretical	CAM simulations on solid models. NC code analysis.
	Practice	
	Laboratory	
Week 15	Theoretical	CAM simulations on solid models. NC code analysis.
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	5	0	0	0	0	0	0	0	0	5	0
OC2	3	0	0	5	0	0	0	0	0	0	0	0	5	0
OC3	3	0	0	5	0	0	0	0	0	0	0	0	5	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Electro-Mechanical Controls and PLC		
Course Code	MTK 2141	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	5
Hours Per Week	4	ECTS	6
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Öğrencinin, kumanda devrelerini kurması,Açık-kapalı,pıd sistemleri kurması,Plc'yi kurması, program yazması ve motor,hidrolik ve pnömatik uygulamalar yapması

The Aim of Course

Öğrencinin, kumanda devrelerini kurması,Açık-kapalı,pıd sistemleri kurması,Plc'yi kurması, program yazması ve motor,hidrolik ve pnömatik uygulamalar yapması

Learning Outcomes

1. PLC ile giriş çıkış uygulamaları yapabilme
2. PLC programı yazabilme
3. PLC sistemi kurabilme
4. Oransal, integral ve türev (PID) denetim sistemlerini kurabilme
5. Açık ve Kapalı çevrim denetim sistemi kurabilme
6. Kumanda devreleri kurabilme
7. PLC ile hidrolik pnömatik uygulamalar yapabilme

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1-Elektromekanik Kumanda Sistemleri ve PLC Murat Ceylan Ekim 2015 / 1. Baskı / 223 Syf.2-ELEKTROMEKANİK KUMANDA SİS., Editör Prof.Dr. Ertuğrul YÖRÜKOĞULLARI, ANADOLU ÜNİ. Yayın.

Course Content

Week	Topic	Content
Week 1	Theoretical	Kumanda sistemleri Üç fazlı asenkron motorlar
	Practice	
	Laboratory	
Week 2	Theoretical	Üç fazlı asenkron motorlarda devir yönü Üç fazlı asenkron motorlarda frenleme Bir fazlı
	Practice	
	Laboratory	
Week 3	Theoretical	Açık çevrim denetim sisteminin hazırlanması Doğru akım motorunun açık çevrim
	Practice	

	Laboratory	
Week 4	Theoretical	Kapalı çevrim denetim sistemi Kapalı çevrim denetimde sistem kontrolü
	Practice	
	Laboratory	
Week 5	Theoretical	Sistem kararlılık analizi Oransal (p) denetim yöntemi
	Practice	
	Laboratory	
Week 6	Theoretical	Pıd Denetim Sistemi 4 plc nin temel teknolojisi 2
	Practice	
	Laboratory	
Week 7	Theoretical	plc üniteleri 4 Plc Arayüz Programı 2
	Practice	
	Laboratory	
Week 8	Theoretical	ARASINAV
	Practice	
	Laboratory	
Week 9	Theoretical	Plc Arayüz Programı 2 PLC Programlama 3 Diğer Programlama Yöntemleri 1
	Practice	
	Laboratory	
Week 10	Theoretical	Diğer Programlama Yöntemleri 2 Sıralı Fonksiyon Blokları 3 Sıralı Fonksiyon
	Practice	
	Laboratory	
Week 11	Theoretical	Sıralı Fonksiyon Bloklarıyla Plc Programı 2 Plc İle Sayısal Giriş Çıkışlar 3 Plc ile analog
	Practice	
	Laboratory	
Week 12	Theoretical	Plc ile analog giriş çıkışlar 2 Plc ile sensörler 2 Dokunmatik paneller 2
	Practice	
	Laboratory	
Week 13	Theoretical	Plc ile adım motor 4 Plc ile ac motor 2
	Practice	
	Laboratory	
Week 14	Theoretical	Plc ile ac motor 1,Plc ile servo motor ,plc ile elektropnömatik
	Practice	
	Laboratory	
Week 15	Theoretical	plc ile elektropnömatik , Plc İle Elektrohidrolik
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	5	0	0	0	0	4	0	0
OC2	0	0	0	4	0	0	4	0	0	0	0	4	0	0
OC3	0	0	0	5	0	0	3	0	0	0	0	5	0	0
OC4	0	0	0	3	0	0	3	0	0	0	0	3	0	0
OC5	0	0	0	4	0	0	5	0	0	0	0	4	0	0
OC6	0	0	0	5	0	0	3	0	0	0	0	3	0	0
OC7	0	0	0	5	0	0	3	0	0	0	0	5	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Industrial Robotics		
Course Code	MTK 2151	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	1	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Basic Definition and Classifications of Robots, Mechanical Elements of Robots, Drive Systems, Robot Sensors, Kinematics and Kinetics of Robot Arm, Programming Robots

The Aim of Course

Aim of the course is to provide students with the basic definitions of robots, the basic analysis of robot arms motion and robot control

Learning Outcomes

1. To be able to classificate the industrial robots.
2. To be able to programing the industrial robots.
3. To be able to renew the industrial robots.
4. To be able to make the application with industrial robots.
5. To be able to use the industrial robots in the field of Mechatronics Systems.

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

1. Asfahl, C. Ray.,Robots and manufacturing automation. John Wiley, New York, 1992.2. Hodges, B., İndustrial robotics, Heinemann Newnes, London, 1990.

Course Content

Week	Topic	Content
Week 1	Theoretical	Basic Definitions
	Practice	
	Laboratory	
Week 2	Theoretical	Classifications of Robots
	Practice	
	Laboratory	
Week 3	Theoretical	Robot Coordinate Systems
	Practice	
	Laboratory	
	Theoretical	Robot Drive Mechanisms

Week 4	Practice	
	Laboratory	
Week 5	Theoretical	End of Robot Arm Tooling
	Practice	
	Laboratory	
Week 6	Theoretical	Robot power systems
	Practice	
	Laboratory	
Week 7	Theoretical	Kinematics of Robot Arm Motion
	Practice	
	Laboratory	
Week 8	Theoretical	Kinetics of Robot Arm Motion
	Practice	
	Laboratory	
Week 9	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 10	Theoretical	Trajectory Generation in Robots
	Practice	
	Laboratory	
Week 11	Theoretical	Robot Control
	Practice	
	Laboratory	
Week 12	Theoretical	Robot Sensors
	Practice	
	Laboratory	
Week 13	Theoretical	Programming in Robots
	Practice	
	Laboratory	
Week 14	Theoretical	Robot Application
	Practice	
	Laboratory	
Week 15	Theoretical	Robot Application
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	4	0	0	0	5	0	0	0
OC2	0	0	0	3	0	0	3	0	0	0	4	0	0	0
OC3	0	0	0	4	0	0	4	0	0	0	4	0	0	0
OC4	0	0	0	4	0	0	4	0	0	0	5	0	0	0
OC5	0	0	0	4	0	0	4	0	0	0	5	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Computer Programming Techniques		
Course Code	MTK 2161	Activity Type	Compulsory
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	3
Hours Per Week	2	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Derste nesne tabanlı programlama dilinin yapılarından ve özelliklerinden yaralanarak problemlere software çözümleri üretilmesi ile gereken pratik becerilerin geliştirilmesi sağlanacaktır.

The Aim of Course

Bu ders Nesne tabanlı programlama dillerinden birini kullanarak yazılım geliştirmenin teorik kavramlarını, temellerini, sınırlarını ve kapsadığı alanları üzerine genel bir bilgi ve anlayış geliştirilmesi sağlamak amacıyla geliştirilmiştir. Derste nesne tabanlı programlama dilinin yapılarından ve özelliklerinden yaralanarak problemlere yazılım çözümleri üretilmesi ile gereken pratik becerilerin geliştirilmesi sağlanacaktır.

Learning Outcomes

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Visual Basic 6 Murat Taşbaşı

Course Content

Week	Topic	Content
Week 1	Theoretical	Visual Basic'e ile adım
	Practice	
	Laboratory	
Week 2	Theoretical	
	Practice	Formların kullanımı
	Laboratory	
Week 3	Theoretical	
	Practice	Sabitler, değişkenler ve operatörler
	Laboratory	
Week 4	Theoretical	
	Practice	Kontroller
	Laboratory	

Week 5	Theoretical	
	Practice	Döngüler
	Laboratory	
Week 6	Theoretical	
	Practice	Döngüler
	Laboratory	
Week 7	Theoretical	
	Practice	Menu ve araç çubuğu hazırlama
	Laboratory	
Week 8	Theoretical	
	Practice	Fonksiyonların kullanımı
	Laboratory	
Week 9	Theoretical	Arasınav
	Practice	
	Laboratory	
Week 10	Theoretical	
	Practice	Dosya İşlemleri
	Laboratory	
Week 11	Theoretical	
	Practice	Hata ayıklama
	Laboratory	
Week 12	Theoretical	
	Practice	Veri tabanı işlemleri
	Laboratory	
Week 13	Theoretical	
	Practice	Veri tabanı işlemleri
	Laboratory	
Week 14	Theoretical	
	Practice	Veri tabanı işlemleri
	Laboratory	
Week 15	Theoretical	
	Practice	Veri tabanı işlemleri
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	4	0	0	4	0	0	0	3	0	0	0
OC2	0	0	0	4	0	0	3	0	0	0	4	0	0	0
OC3	0	0	0	3	0	0	4	0	0	0	5	0	0	0
OC4	0	0	0	5	0	0	5	0	0	0	4	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Professional Foreign Language		
Course Code	MTK 2203	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Travel, Food and Drink, Clothes, Communication, Comparisons, Around the world, Everyday Life, Experiences Present Continuous, question forms, Going to Future, infinite of purpose, weather words, making suggestions. Shall I / Shall we / Lets / What about / how about, adverbs and adjectives, adjectives ending in /-ed/ and /-ing/ Present Perfect with 'ever, never, always, yet, just, since, for. Present Perfect Continuous, Past Perfect, Past Perfect Continuous, Adverbial Clauses.

The Aim of Course

In this lesson; basic concepts and definitions basic vocational training competencies are intended to be given to the students.

Learning Outcomes

1. To be able to discuss on different articles related to his field.
2. To be able to study on projects about different topics in his field.
3. To be able to improve his/her vocabulary level in his field.
4. To be able to analyse grammar rules in the texts.
5. To be able to improve integrated skills (reading, listening, speaking, writing).

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

English-Turkish Dictionary

Course Content

Week	Topic	Content
Week 1	Theoretical	Travel, food and drink, clothes, Communication, Comparisons,
	Practice	
	Laboratory	
Week 2	Theoretical	Travel, food and drink, clothes, Communication, Comparisons,
	Practice	
	Laboratory	
Week 3	Theoretical	Travel, food and drink, clothes, Communication, Comparisons,
	Practice	

	Laboratory	
Week 4	Theoretical	World, daily life, Experiences
	Practice	
	Laboratory	
Week 5	Theoretical	World, daily life, Experiences
	Practice	
	Laboratory	
Week 6	Theoretical	World, daily life, Experiences
	Practice	
	Laboratory	
Week 7	Theoretical	Present tense, question forms
	Practice	
	Laboratory	
Week 8	Theoretical	Present tense, question forms
	Practice	
	Laboratory	
Week 9	Theoretical	MIDTERM EXAM
	Practice	
	Laboratory	
Week 10	Theoretical	FUTURE
	Practice	
	Laboratory	
Week 11	Theoretical	Weather words
	Practice	
	Laboratory	
Week 12	Theoretical	Suggestion phrase" Shall I / Shall we / Let's / What about / how about
	Practice	
	Laboratory	
Week 13	Theoretical	Adjectives and adverbs, /-ed / and /-ing / ending with envelopes.
	Practice	
	Laboratory	
Week 14	Theoretical	Adjectives and adverbs, /-ed / and /-ing / ending with envelopes.
	Practice	
	Laboratory	
Week 15	Theoretical	Adjectives and adverbs, /-ed / and /-ing / ending with envelopes.
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	3	0	0	0	0	0	0	0	0	5	0	0	0	0
OC2	3	0	0	0	0	0	0	0	0	5	0	0	0	0
OC3	3	0	0	0	0	0	0	0	0	5	0	0	0	0
OC4	3	0	0	0	0	0	0	0	0	5	0	0	0	0
OC5	3	0	0	0	0	0	0	0	0	5	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Machine Elements		
Course Code	MTK 2213	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Asst. Prof. Dr. Hüseyin Erdem YALKIN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Unit Systems- General Principles of Machine Design, Standards-Tolerances and Fits, Strength Calculations of Machine Elements, Material Selection for Machine Elements, Solder Ties- Bonding Ties, Welding Ties- Rivet Ties, Bolt Ties- Pins and Pernos, Shaft- Core Ties, Friction Wheels, Springs - Axles - Shafts, Tribology (Friction - Oils and Lubrication), Plain Bearings - Bearings, Clutches - Belt Pulley Mechanisms, Gear Wheels.

The Aim of Course

To understand the basic static and strength information for the design face, according to classify the elements of the machine, machine components and calculate the strength to choose the appropriate elements.

Learning Outcomes

1. To be able to recognize and use unit systems.
2. To be able to define push and pull tensions.
3. To be able to classify machine elements.
4. To be able to make Selection of materials for machine element.
5. To be able to know Solder bonds, Adhesion bonds.
6. To be able to know Welding bonds, Rivet bonds.
7. To be able to know Bolt (pin) bonds, Pins and bolts (pernos).
8. To be able to know Spindle, Hub (core) bonds.

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

1) Bozaci, Atilla; Machine Elements, Volume1, Volume 2, Caglayan Pub., 2005, Istanbul2) Bozaci, Atilla; Projecting of Machine Elements, Caglayan Pub., 2001, Istanbul3) Akkurt, Mustafa; Machine Elements, Volume 1-2, Birsen Pub., 2005, Istanbul4) Gediktas, Mustafa; Machine Elements Problems, Caglayan Pub., 1999, Istanbul

Course Content

Week	Topic	Content
Week 1	Theoretical	Unit systems. Basic principles in machine design
	Practice	Unit Conversion Applications
	Laboratory	
Week 2	Theoretical	Standards. Tolerances and exceeding
	Practice	Standard- Tolerance and Exceeding Calculations

	Laboratory	
Week 3	Theoretical	Strength Calculations of Machine Elements
	Practice	Strength Calculations of Machine Elements
	Laboratory	
Week 4	Theoretical	Material Selection for Machine elements
	Practice	Material Selection Applications
	Laboratory	
Week 5	Theoretical	Solder bonds. Adhesion bonds
	Practice	Solder Calculations
	Laboratory	
Week 6	Theoretical	Welding bonds. Rivet bonds
	Practice	Welding-Rivet Calculations
	Laboratory	
Week 7	Theoretical	Bolt (pin) bonds. Pins and bolts (pernos)
	Practice	Bolt Calculations
	Laboratory	
Week 8	Theoretical	Spindle. Hub (core) bonds
	Practice	Shaft - Umbilical Ties Applications
	Laboratory	
Week 9	Theoretical	Exam-Midterm exams
	Practice	
	Laboratory	
Week 10	Theoretical	Friction wheels
	Practice	Friction wheel calculations
	Laboratory	
Week 11	Theoretical	Springs. Axis. Spindles
	Practice	Shaft and axle calculations
	Laboratory	
Week 12	Theoretical	Tribology (Friction. Greases (oils) and greasing (oiling))
	Practice	Tribological Applications
	Laboratory	
Week 13	Theoretical	Sliding bearing. Rolling element (Anti friction) bearing
	Practice	Bearing Calculations
	Laboratory	
Week 14	Theoretical	Clutches. Belt tambour mechanisms
	Practice	Belt Pulley Calculations
	Laboratory	
Week 15	Theoretical	Gear Wheels
	Practice	Gear Wheel Calculations
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC2	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC3	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC4	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC5	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC6	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC7	5	0	0	0	0	4	0	0	0	0	0	0	5	0
OC8	3	0	0	0	0	4	0	0	0	0	0	0	5	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Computer Aided Electronic Circuit Design		
Course Code	MTK 2223	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

To be able to design of the electronic circuits and to prepare printing circuits of these designes by using Proteus Isis and Proteus Ares programs

The Aim of Course

To be able to design of the electronic circuits and to prepare printing circuits of these designes with computer

Learning Outcomes

1. To be able to make circuit drawing
2. To be able to make circuit analysis
3. To be able to prepare PCB layout
4. to be able to Debug on the circuit

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Lecture notes

Course Content

Week	Topic	Content
Week 1	Theoretical	Installation and introduction of Isis and Ares programs
	Practice	Aplication of the lecture content
	Laboratory	
Week 2	Theoretical	Introducing the Isis program's menus and toolbars
	Practice	Aplication of the lecture content
	Laboratory	
Week 3	Theoretical	Selection of circuit elements and creation of simple circuits
	Practice	Aplication of the lecture content
	Laboratory	
Week 4	Theoretical	To construct schema of some industrial circuits and simulate them
	Practice	Aplication of the lecture content

	Laboratory	
Week 5	Theoretical	To measure the voltage or current amount during simulation
	Practice	Aplication of the lecture content
	Laboratory	
Week 6	Theoretical	To make a device using isis environment
	Practice	Aplication of the lecture content
	Laboratory	
Week 7	Theoretical	To define package and to make design of any package and using ares
	Practice	Aplication of the lecture content
	Laboratory	
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	Transferring the created craft to the Proteus ARES program. Use of the ARES program.
	Practice	
	Laboratory	
Week 10	Theoretical	Transferring the created craft to the Proteus Ares program. Use of the ARES program.
	Practice	Aplication of the lecture content
	Laboratory	
Week 11	Theoretical	Package selection and preparation.
	Practice	Aplication of the lecture content
	Laboratory	
Week 12	Theoretical	Print circuit arrangement studies.
	Practice	Aplication of the lecture content
	Laboratory	
Week 13	Theoretical	Creation of vehicles using ISIS.
	Practice	Aplication of the lecture content
	Laboratory	
Week 14	Theoretical	Prepare a printed circuit board by printing using ISIS and ARES.
	Practice	Aplication of the lecture content
	Laboratory	
Week 15	Theoretical	Prepare a printed circuit board by printing using ISIS and ARES.
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	2	3	4	5	4	1	5	1	4	0	0	0	0	0
OC2	3	3	4	5	3	3	2	0	4	0	0	0	0	0
OC3	3	4	4	5	4	1	2	0	0	0	0	0	0	0
OC4	3	4	5	4	4	4	3	0	5	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Phyton Programming		
Course Code	MTK 2233	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Üzeyir KUZU
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Introduction to Python programming, iInput/output, loops, control structures (if else, while, for looping), user defined functions, array lists, modules, object-oriented programming, database programming with SQLite, network programming.

The Aim of Course

The aim of the course is to teach python programming. Structure of python programming, basic I/O processing, loops, control structures, modules and functions, connections to the databases will be taught.

Learning Outcomes

1. To be able to learn principles of Python programming
2. To be able to learn connections to the database
3. To be able to learn functions and file processing.
4. To be able to use python packages for other science fields

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Zelle, J.M., 2010, Python Programming: An Introduction to Computer Science, Franklin, Beedle & Associates Inc.

Course Content

Week	Topic	Content
Week 1	Theoretical	Introduction to Python Programming
	Practice	
	Laboratory	
Week 2	Theoretical	Input /Output, Variables
	Practice	
	Laboratory	
Week 3	Theoretical	Control Structures I (If Else, Switch)
	Practice	
	Laboratory	
Week 4	Theoretical	Control Structures II (While , do? While, For Looping)
	Practice	

	Laboratory	
Week 5	Theoretical	User Defined Functions
	Practice	
	Laboratory	
Week 6	Theoretical	User Defined Functions
	Practice	
	Laboratory	
Week 7	Theoretical	Array Lists
	Practice	
	Laboratory	
Week 8	Theoretical	Midterm exam
	Practice	
	Laboratory	
Week 9	Theoretical	File Processing
	Practice	
	Laboratory	
Week 10	Theoretical	File Processing
	Practice	
	Laboratory	
Week 11	Theoretical	Database operations
	Practice	
	Laboratory	
Week 12	Theoretical	Web and python programming
	Practice	
	Laboratory	
Week 13	Theoretical	Web and python programming
	Practice	
	Laboratory	
Week 14	Theoretical	Project Presentations
	Practice	
	Laboratory	
Week 15	Theoretical	Final Project
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	4	3	4	4	5	0	0	0	0	0	0	0	0	0
OC2	4	4	5	4	5	0	0	0	0	0	0	0	0	0
OC3	3	4	5	4	4	0	0	0	0	0	0	0	0	0
OC4	4	5	4	4	5	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Mechatronic System Design		
Course Code	MTK 2243	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor Osman DEMİRCİ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Mechatronic Systems, Project Development, Mechatronic System Design, Modeling, Simulation, System Development.

The Aim of Course

Transferring the fundamental principles and concepts of mechatronic system design,Conducting sample project designs within these principles and concepts,Teaching modeling principles,Teaching simulation principles,Introducing simulation software,Teaching testing principles and methods,Facilitating the development of a designed project.

Learning Outcomes

1. Fundamental principles and concepts of mechatronic system design,
2. Fundamental principles and concepts of modeling,
3. Fundamental principles and concepts of simulation,
4. Fundamental principles and methods of testing,
5. Project development lifecycle,
6. Application of a mechatronic system project.

Evaluation Criteria

Proje Ara Raporu (%40) Proje Uygulama Raporu (%60)

Recommended or Required Reading

Mechatronics Foundations, Musa Jouaneh, Nobel Publishing, ISBN: 9786050331356

Course Content

Week	Topic	Content
Week 1	Theoretical	Introduction, Objectives, and Method
	Practice	
	Laboratory	
Week 2	Theoretical	Mechatronic Systems:Basic Elements of Mechatronic Systems
	Practice	
	Laboratory	
Week 3	Theoretical	Mechatronic Design Approach and Process:Integrated Design Topics in
	Practice	
	Laboratory	

Week 4	Theoretical	Explanation of Project Writing Processes 1:Determination of 2209A/2209B Project
	Practice	
	Laboratory	
Week 5	Theoretical	Explanation of Project Writing Processes 2:Preparing the Project File (Method and
	Practice	
	Laboratory	
Week 6	Theoretical	Explanation of Project Writing Processes 3:Preparing the Project File (Work Plan and
	Practice	
	Laboratory	
Week 7	Theoretical	Project Group Work 1:Preparing the Project File (Checking the Completed Project File)
	Practice	
	Laboratory	Laboratory Work
Week 8	Theoretical	Project Interim Report Submission
	Practice	
	Laboratory	Laboratory Work
Week 9	Theoretical	Project Group Work 2
	Practice	
	Laboratory	Laboratory Work
Week 10	Theoretical	Project Group Work 3
	Practice	
	Laboratory	Laboratory Work
Week 11	Theoretical	Project Group Work 4
	Practice	
	Laboratory	Laboratory Work
Week 12	Theoretical	Project Group Work 5
	Practice	
	Laboratory	Laboratory Work
Week 13	Theoretical	Project Group Work 6
	Practice	
	Laboratory	Laboratory Work
Week 14	Theoretical	Project Group Work 7
	Practice	
	Laboratory	Laboratory Work
Week 15	Theoretical	Evaluation of End-of-Term Projects
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	5	0	0	0	0	0	0	0	0	0	0	0	0	0
OC2	0	0	4	0	0	0	0	0	0	0	0	0	0	0
OC3	0	0	5	0	0	0	0	0	0	0	0	0	0	0
OC4	5	0	0	0	3	0	0	5	0	0	0	0	0	0
OC5	0	0	3	0	3	0	0	0	0	5	0	0	0	0
OC6	5	0	0	0	0	0	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Predictive Maintenance		
Course Code	MTK 2253	Activity Type	Optional
Semester	Autumn	Semester	3
Course Language	Turkish	National Credit	2
Hours Per Week	2	ECTS	3
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	11.12.2024

Course Content

Bakım nedir? Bakımın amacı ve önemi nedir? Ekipman etkinliği oranı nedir? Bakımda 16 kayıp nedir? Önleyici ve koruyucu bakım faaliyetlerinin temelleri nelerdir? Bakımda anahtar performans göstergeleri ve önemi nedir? Bakım organizasyonu, bakım planlaması ve zamanlaması nasıl ve hangi kriterlere göre yapılır? Bakım türleri nelerdir? Arıza esaslı bakım nedir? Koruyucu bakım nedir? Kestirimci bakım nedir? Kestirimci bakımda kullanılan ekipmanlar nelerdir? Toplam üretken bakım nedir? Otonom bakım nedir? 5S nedir ve 5S Uygulamaları nasıl yapılır? Kaizen nedir ve nasıl uygulanır? Bakımda yağ seçimi ve önemi.

The Aim of Course

Mekatronik sistemlerin ve makinelerin daha uzun ömürlü olmasının yollarını öğreterek, bakım bilincini oluşturmaktır.

Learning Outcomes

1. Öğrenciler, teknik sistemlerin operasyonların güvenliği üzerindeki etkilerini ve önleyici bakımın gerekliliğini tanımlayabilirler.
2. Öğrenciler bakım ihtiyaçlarını belirlemek için bakım planlarını kullanabilir ve prosedürleri uygulayabilirler
3. Öğrenciler güvenlik donanımlarını kontrol edebilir ve ayarlayabilirler

Evaluation Criteria

txtDegerlendirmeKriteri

Recommended or Required Reading

Meran, C., Bakım Tekniği Ders Notları, 2011Kirazlılar, B., Endüstriyel Bakım, Birsen Yayınevi, 2007

Course Content

Week	Topic	Content
Week 1	Theoretical	The effects and necessity of Preventive and Predictive Maintenance on the operational
	Practice	
	Laboratory	
Week 2	Theoretical	Block diagrams, action and function diagrams of mechatronic systems
	Practice	
	Laboratory	
Week 3	Theoretical	Necessary measurement methods, Troubleshooting methods in mechanical, electrical,
	Practice	

	Laboratory	
Week 4	Theoretical	Protective measures and protection arrangements for electrical and mechanical systems
	Practice	
	Laboratory	
Week 5	Theoretical	Failure analysis, typical causes of failures. Contamination, fatigue, consumption, wear,
	Practice	
	Laboratory	
Week 6	Theoretical	Mechatronic systems commissioning and protocol
	Practice	
	Laboratory	
Week 7	Theoretical	Midterm Exam
	Practice	
	Laboratory	
Week 8	Theoretical	Failure analysis, typical causes of failures, process visualization, diagnostic systems,
	Practice	
	Laboratory	
Week 9	Theoretical	Creation and adaptation of maintenance plans-1
	Practice	
	Laboratory	
Week 10	Theoretical	Creation and adaptation of maintenance plans-2
	Practice	
	Laboratory	
Week 11	Theoretical	Creation and adaptation of maintenance plans-2
	Practice	
	Laboratory	
Week 12	Theoretical	Inspection, control procedures of safety equipment -1
	Practice	
	Laboratory	
Week 13	Theoretical	Inspection, control procedures of safety equipment -2
	Practice	
	Laboratory	
Week 14	Theoretical	Failure documentation, repair protocol
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	0	0	0	0	0	3	3	0	0
OC2	0	0	0	0	0	0	0	0	0	0	3	3	0	0
OC3	0	0	0	0	0	0	0	0	0	0	3	3	0	0

Manisa Celal Bayar University

Mechatronics

Mechatronics

The Course Description Form

Course Name	Vocational Training in Workplace		
Course Code	MYO 2002	Activity Type	Compulsory
Semester	Spring	Semester	4
Course Language	Turkish	National Credit	4
Hours Per Week	5	ECTS	18
Prequisite	N/A	Co-requisites	

Name of Lecturer	Assoc. Prof. Dr. Mehmet AYVAZ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

To find opportunity to apply their knowledge in public or private organizations in accordance with the lessons they have seen, to apply production and service processes in the workplace.

The Aim of Course

To develop students' knowledge, skills, attitudes and working habits in their learning periods, skills and experiences in laboratory and workshop practices, to provide their responsibilities, relationships, organization and production processes and new technologies to learn.

Learning Outcomes

1. To be able to prepare for business
2. To be able to be ready to group work
3. To be able to improve knowledge and skill of production methods
4. To be able to understand the importance of quality and control in manufacturing

Evaluation Criteria

Vize (%40) Final (%60)

Recommended or Required Reading

Manisa Celal Bayar University Sector Applications Education Directive
(https://sus.cbu.edu.tr/ISS/Application/Content/HomePage/Files/SUS-Yonerge.pdf)

Course Content

Week	Topic	Content
Week 1	Theoretical	Introducing the internship, studying the physical possibilities of the employer.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 2	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 3	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.

Week 4	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 5	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 6	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 7	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 8	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 9	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 10	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 11	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 12	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 13	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 14	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	
Week 15	Theoretical	To do maintenance, repair and assembly applications related to the field of industry.
	Practice	Inspection, observation and reporting of work done.
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	4	4	0	3	5	3	0	0	0	0	0	0	0	0
OC2	4	4	0	3	5	3	0	0	0	0	0	0	0	0
OC3	4	4	0	3	5	3	0	0	0	0	0	0	0	0
OC4	4	5	0	3	5	3	0	0	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Atatürk's Principles and History of Revolution		
Course Code	AİT 2102	Activity Type	Compulsory
Semester	Spring	Semester	4
Course Language	Turkish	National Credit	4
Hours Per Week	4	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor SERKAN CANSEVEN
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

1 - Principles of Atatürk and purpose of the course, taught2 - The causes of decay of the Ottoman Empire3 - World War I and the results4 - Response to the occupation and Mustafa Kemal Pasha5 - National Pact and T.B.M.M. 's opening6 - Wars and the Treaty of Lausanne

The Aim of Course

1 - Ataturk's principles and reforms, independent, democratic and secular training of generations2 - Turkish youth, to gain confidence in national history and consciousness3 - Basic understand the dynamics of Turkish Modernization

Learning Outcomes

1. To be able to comprehend developments in European history and Ottoman modernization
2. To be able to decline the Ottoman Empire to explain the reasons
3. To be able to learn the causes and consequences of World War I
4. To be able to understand Turkish National Struggle,
5. To be able to understand the foundation philosophy of the Republic of Turkey better

Evaluation Criteria

Vize (%20) Final (%80)

Recommended or Required Reading

1- Sound, I, II, III2- Atatürk's Lectures and Statements I, II, III3- Ataturk Way Professor Dr. Turan Feyzioğlu Professor Dr. Hamza Eroğlu Professor Dr. Mustafa Aysan4- Çankaya Falih Rıfkı Atay5- Atatürk's Principles and History of Turkish Revolution Professor Dr. Refik Turan Professor Dr. Mustafa Safran Professor Dr. Necdet Hayta

Course Content

Week	Topic	Content
Week 1	Theoretical	Reading for the Purpose of the Atatürk Principles and Revolution History Class The Fall
	Practice	
	Laboratory	
Week 2	Theoretical	The Fall of the Ottoman Empire Administrative Reforms and I. Constitutionalism
	Practice	
	Laboratory	
	Theoretical	Reasons for the Monarchy and the Turkish Revolution

Week 3	Practice	
	Laboratory	
Week 4	Theoretical	World War I and the Armistice Agreement
	Practice	
	Laboratory	
Week 5	Theoretical	General Situation of the country against the occupation Mustafa Kemal Pasha's Response
	Practice	
	Laboratory	
Week 6	Theoretical	Mustafa Kemal Pasha at Samsun and The Congresses
	Practice	
	Laboratory	
Week 7	Theoretical	Mustafa Kemal Pasha at Samsun and The Congresses
	Practice	
	Laboratory	
Week 8	Theoretical	Mid-term\exam
	Practice	
	Laboratory	
Week 9	Theoretical	Opening of Meclis-i Mebusan and Misak-ı Milli
	Practice	
	Laboratory	
Week 10	Theoretical	T.B.M.M.'s Opening and Structure
	Practice	
	Laboratory	
Week 11	Theoretical	Facades, I. and II. Inonu, Sakarya War, The Great Raid, The Treaty of Mudanya
	Practice	
	Laboratory	
Week 12	Theoretical	The Treaty of Lausanne
	Practice	
	Laboratory	
Week 13	Theoretical	Proclamation of the Republic, Turkey's geopolitical position
	Practice	
	Laboratory	
Week 14	Theoretical	Foreign Policy of the Republic of Turkey
	Practice	
	Laboratory	
Week 15	Theoretical	Overview
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC5	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Turkish Language		
Course Code	TDL 2102	Activity Type	Compulsory
Semester	Spring	Semester	4
Course Language	Turkish	National Credit	4
Hours Per Week	4	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Lecturer MUSTAFA YEMİŞ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Each student in the graduate and undergraduate education, according to comprehend the main language structure and function of language-thought in terms of connectivity, through written and oral expression, the Turkish right and gain the ability to use beautiful, these rules and native speakers of the language in an awareness of judges and they will have to make. The perfect way to express ideas in accordance with the purpose of rhetoric, including the necessary rules (speaking) knowledge of each profession for educated young people has become a very important need. In this regard, given to institutions of higher education courses in Turkish language, Turkish, and literature courses in high schools as a continuation of the rhetoric, especially in the field will be useful to intensify. On the other hand, a written essay as well as young people, to acquire the habit of speaking correctly and effectively is an issue that should not be neglected. Western countries, drawing upon the books written on this topic, Turkish course programs to address the audience, it is possible to teach techniques and methods of the rule. In this regard, particularly as Ataturk, the Turkish speecher's valuable speech will be taken to benefit from the texts.

The Aim of Course

The overall objective of this course, individuals who understand the subtlety and depth listening, and reading the Turkish language-rich, well-established and productive to show that a language, language and consciousness awaken love, pleasure and acquire the habit of reading, to adopt the core values of Turkish society; briefly thinking and communication skills of individuals to develop.

Learning Outcomes

1. To be able to explain the characteristics of Turkish language by sensing its usage procedure with examples.
2. To be able to express the function, dimensions of language and its relationship with thought, culture, and society.
3. To be able to distinguish between the concepts of spoken language and written language;
4. To be able to analyze a text they read or follow a program they watch.
5. To be able to correctly and affectively express their feelings, thoughts, impressions, observations both in written and spoken language.
6. To be able to identify the historical background of Turkish and its location among world languages;
7. To be able to apply the basic concepts of morphology;
8. To be able to explain the concepts about syntax and semantics.
9. To be able to identify the mistakes in the usage of the language and show them on the texts.
10. To be able to become an individual who is tolerant and cares about his values, and also, someone who can find solutions to the problems and correctly express his ideas about these problems both in written and spoken language.

Evaluation Criteria

Vize (%20) Final (%80)

Recommended or Required Reading

Aksan, Dogan, Every Direction Language / Linguistics with Main Lines, c.1,2,3, Turkish Language Institution, 1979-1982Aksoy, Ömer Asım, Dictionary of Proverbs, İnkilap Bookstore, January 1988Aksoy, Ömer Asım, Dictionary of Idioms, İnkilap Bookstore, January 1988Atatürk, Mustafa Kemal, SpeechBanguoğlu, Tahsin, Turkish Grammer, Turkish Language Institute Publications, 2000Bozkurt, Fuat, Turkish, Istanbul, 1975Buckley, Reid, Speaking at the Community, System Publishing, May 2001Dilçin, Cem, New Screening Dictionary, Ankara, 1983Ergin, Muharrem, Turkish Language for Universities, Bayrak Publications, 2002Gencan, Tahir Nejat, Grammar, Ayraç Publishing House, October 2001Karaalioğlu, Seyit Kemal, Composition Art, Istanbul, January 1999Karahan, Leyla, Türkçede Syntax, Akçağ Publications, 1999Kudret, Cevdet, Literature Information by Examples, c. 1, 2, İnkılap Bookstore, 1980Koç, Nurettin, New Grammar, Istanbul, 1990Moran, Berna, A Critical Look at Turkish Names, c. 1, 2, 3, Communication Publications, 1983-1994Özdemir, Emin, Güzel and Effective Speech Art, Remzi Bookstore, January 1999Özen, Mustafa Nihat, Introduction to Writing Art and Composition, İstanbul, 1971

Course Content

Week	Topic	Content
Week 1	Theoretical	What is language? In people's life the importance of language as a social institution.
	Practice	
	Laboratory	
Week 2	Theoretical	Language in terms of structure and origin. Place of Turkish language among world
	Practice	
	Laboratory	
Week 3	Theoretical	The development of Turkish written language. Historical stages of Turkish written
	Practice	
	Laboratory	
Week 4	Theoretical	The current status of the Turkish language, expansion areas of the Turkish language.
	Practice	
	Laboratory	
Week 5	Theoretical	Phonetic, sounds in Turkish and its classification.
	Practice	
	Laboratory	
Week 6	Theoretical	Turkish sound features and sound knowledge of the rulesThe structure of syllables in
	Practice	
	Laboratory	
Week 7	Theoretical	Midterm-exam
	Practice	
	Laboratory	
Week 8	Theoretical	Spelling rules and application.Mid-term exam.
	Practice	
	Laboratory	
Week 9	Theoretical	Spelling rules and application.Mid-term exam.
	Practice	
	Laboratory	
Week 10	Theoretical	Punctuation and its applications.
	Practice	
	Laboratory	
Week 11	Theoretical	Morphology, lexis structure, word formation.
	Practice	
	Laboratory	
Week 12	Theoretical	Construction and suffixes, word analysis.
	Practice	
	Laboratory	
Week 13	Theoretical	The word types. Noun, adjective.
	Practice	
	Laboratory	
Week 14	Theoretical	The word types. Adverb, pronouns, prepositions, conjunctions and interjections
	Practice	
	Laboratory	

Week 15	Theoretical	The word types. Verbs, gerunds, infinitives, active-passive.
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	0	4	0	0	2	0	0	4	3	0	0	0	0	0
OC2	2	3	0	0	0	0	0	5	0	0	0	0	0	0
OC3	0	0	0	0	0	0	0	5	0	0	0	0	0	0
OC4	4	3	0	0	2	0	0	4	2	0	0	0	0	0
OC5	4	5	0	0	0	0	0	5	3	0	0	0	0	0
OC6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC8	0	4	0	0	0	0	0	3	0	0	0	0	0	0
OC9	5	3	0	0	3	0	0	4	0	0	0	0	0	0
OC10	4	4	0	0	0	0	0	5	0	0	0	0	0	0

Manisa Celal Bayar University

MANİSA VOCATIONAL SCHOOL OF TECHNICAL SCIENCES

Mechatronics

The Course Description Form

Course Name	Foreing Language		
Course Code	YDI 2102	Activity Type	Compulsory
Semester	Spring	Semester	4
Course Language	Turkish	National Credit	4
Hours Per Week	4	ECTS	4
Prequisite	N/A	Co-requisites	

Name of Lecturer	Instructor EMEL GENÇ
Name of Assistant Lecturer	
Presentation Date of Form	26.06.2024

Course Content

Elementary level vocabulary, grammar and four skills of English.

The Aim of Course

The aim of this course is to provide the first year students with the opportunity of getting familiar with basic English

Learning Outcomes

1. To be able to understand basic English grammar.
2. To be able to grasp the meaning of basic vocabulary.
3. To be able to speak, read and write in English at Elementary Level.
4. To be able to introduce yourself.

Evaluation Criteria

Vize (%20) Final (%80)

Recommended or Required Reading

Headway-Elementary (Oxford)

Course Content

Week	Topic	Content
Week 1	Theoretical	regular/irregular verbs
	Practice	Writingtelling a story
	Laboratory	
Week 2	Theoretical	Unit 7Introducing peopletime expressions
	Practice	reading sıxty years of flight
	Laboratory	
Week 3	Theoretical	unit 8 countable and uncountable nounshow much/how many
	Practice	reading and speaking"The history of the sandwich" okuma parçasını okuyup
	Laboratory	
Week 4	Theoretical	some/any
	Practice	Listening"What's your favourite sandwich"
	Laboratory	

Week 5	Theoretical	unit 9ComparativesHave got/has gotSuperlatives
	Practice	Reding" Mega cities"
	Laboratory	
Week 6	Theoretical	adjectivesUnit 10Present continuous tensein/on/at
	Practice	Describing a flatWritingComparing people you know
	Laboratory	
Week 7	Theoretical	Midterm Exam
	Practice	
	Laboratory	
Week 8	Theoretical	Present continuous tensein/on/atSimple present& present continuous
	Practice	
	Laboratory	
Week 9	Theoretical	Present continuous tensein/on/atSimple present& present continuous
	Practice	Reading"Living in Space"
	Laboratory	
Week 10	Theoretical	Unit 11going to/willmaking suggestions
	Practice	WritingDescribing a holiday"
	Laboratory	
Week 11	Theoretical	Unit 11Simple past& present perfect
	Practice	speakingTalking about youHave you ever .....?
	Laboratory	
Week 12	Theoretical	Simple past& present perfecttense revision
	Practice	TalkSurvey 'What can you do?'Reading and speaking'Super Children'Writing letters for
	Laboratory	
Week 13	Theoretical	Unit 6couldWas bornhomonym for
	Practice	Using 'could' for past skills.Define where and when you are born.Finding the same
	Laboratory	
Week 14	Theoretical	Revision
	Practice	Overview
	Laboratory	
Week 15	Theoretical	Overview
	Practice	
	Laboratory	

Program and Learning Outcomes Relations

OC	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13	PC14
OC1	1	3	2	1	1	1	1	3	2	2	0	0	0	0
OC2	2	2	2	1	2	2	1	3	2	2	0	0	0	0
OC3	2	2	3	2	2	1	1	3	3	1	0	0	0	0
OC4	0	0	0	0	0	0	0	0	0	0	0	0	0	0