

Year

Department of Electronics and Automation / Department of Electronics and Automation /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
KNT126	ELECTROMECHANICAL CONTROL SYSTEMS	3.00	1.00	0.00	4.00	4.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: PreBachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: The aim of this course is to teach the working principles, symbols and usage of control circuit elements in industrial control systems; to teach basic control techniques such as starting, stopping, reversing, braking and speed control of motors; and to introduce industrial automation applications with basic level PLC programming.					
Course Contents	: This course covers the introduction and use of control circuit elements, control of electric motors and the use of PLC in automation systems. Control input and output elements (pushbuttons, limit switches, contactors, electromagnetic elements, etc.), electric motor protection relays (magnetic and thermal circuit breakers) and AC motor control, control, starting, stopping, braking, reversing and low voltage starting techniques will be covered. In addition, special circuit elements such as contactors, time relays and PLC programming and applications at the entry level in automation systems will also be covered.					
Recommended or Required Reading	: 1) Murat Ceylan . Elektromekanik Kumanda Sistemleri ve PLC Elektrik Kumanda Devreleri – PLC – Kumanda Panosu . Seçkin Yayıncılık . 9789750296659. 2) İlhami Çolak, Ramazan Bayındır, Seyfettin Vadi . Elektrik Kumanda Devreleri Ve S7–1200 İle Plc Programlama Endüstriyel Otomasyon – Tia Portal . Seçkin Yayıncılık . 9789750272660					
Planned Learning Activities and Teaching Methods	: Lecture Method, Question-Answer Method, Use of Visual and Auditory Materials, Problem-Solving Method, Demonstration, Group Work.					
Recommended Optional Programme Components	: Before the lesson, students can prepare for the weekly subject; after the lesson, in order to reinforce learning, repeating the application examples both on paper and computer applications will ensure that the lesson is learnt and efficient.					
Course Instructors	: Öğr. Gör. Dr. Yunus Kara					
Instructor's Assistants	:					
Presentation Of Course	: Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Problem Solving Method, Practical Demonstration, Group Work.					
Update Date	: 2/6/2026 3:13:36 PM					
Dosya İndirilme Tarihi	: 2/6/2026					

Course Outcomes

Upon the completion of this course a student :

- 1 To be able to define the structures, functions and application areas of buttons, relays, contactors, sensors and similar elements used in control circuits.
- 2 Can make appropriate control circuit designs.
- 3 Design appropriate control circuits for different motor types and read and interpret circuit diagrams.
- 4 Can use the structure of programmable logic controllers (PLC), programming languages and basic PLC applications.
- 5 Analyse general electrical connections and control circuit diagrams and make comprehensive evaluations about the design principles and working principles of the circuits.

Pre / Side Conditions

Course Code	Course Name	Condition	Teorical	Practice	Laboratory	Credits	ECTS
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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Control input elements	*Visual presentation of control input elements and their operation in EKTS application.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:21-39	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.1 Ö.Ç.2 Ö.Ç.1 Ö.Ç.1
2.Week	*Control input elements	*Visual presentation of control input elements and their operation in EKTS application.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:39-44	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.1 Ö.Ç.2 Ö.Ç.1 Ö.Ç.1
3.Week	*Control output elements	*Visual presentation of control output elements and their operation in EKTS application.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:45-54	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.1 Ö.Ç.2 Ö.Ç.1 Ö.Ç.1 Ö.Ç.1 Ö.Ç.1
4.Week	*Control output elements	*Visual presentation of control output elements and their operation in EKTS application.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:55-94	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.1 Ö.Ç.2 Ö.Ç.1 Ö.Ç.1 Ö.Ç.1 Ö.Ç.1 Ö.Ç.1

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
5.Week	*Intermittent operation, Continuous operation, Sealing, Control circuit, Power circuit.	*Intermittent operation, Continuous Operation, Sealing, Control circuit, Power circuit in EKTS programme and making students do it practically.	*Intermittent operation, Continuous operation, Sealing, Control circuit, Power circuit.	*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:95-127	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
6.Week	*Zaman röleli uygulamalar	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:56-60, 128-140	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
7.Week	*Elektromekanik Kumanda sistemlerinde problem çözme	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S128-140	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
8.Week	*Ara sınav					Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
9.Week	*Elektrik motorlarının kumandası	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:118-147	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
10.Week	*Elektrik motorlarının kumandası	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:118-147	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
11.Week	*Elektromekanik Kumanda sistemlerinde problem çözme	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:118-147	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.2 Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
12.Week	*PLC Kullanımı	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:159-166	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
13.Week	*PLC Kullanımı	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:167-203	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5
14.Week	*PLC Kullanımı	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:167-203	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.5

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
15.Week	*Kumanda ve PLC sistemlerinde problem çözme	*EKTS programme and making students do it practically.		*Ceylan, M. (2024). Elektromekanik Kumanda Sistemleri ve PLC. Seçkin Yayıncılık.S:203-227	*Lecture Method, Question-Answer Method, Use of Audio-Visual Materials, Practical Demonstration	Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5

Assesment Methods %
2 Final : 100.000

ECTS Workload			
Activities	Count	Time(Hour)	Sum of Workload

Program And OutcomeRelation														
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12	P.O.13	P.O.14
	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14
L.O. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Avarage	0.60	0.20	0.80	0.60	0.80	0	0.80	0	0.60	0	1.00	1.00	1.00	0.80

Ders/Program Çıktıları İlişkisi														
P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	
3	1	4	3	4	0	4	0	3	0	5	5	5	4	

BEWARE OF PLAGIARISM! Please pay attention to proper academic citation rules and avoid plagiarism, an unethical and academically fraudulent behavior, when completing reports, assignments, or other academic works, and it is treated with the same disciplinary action as cheating in a classroom setting. It is imperative to refrain from presenting another person s ideas, language, expressions, or any other form of intellectual property as your own. Regardless of quality, your assignments/projects/research should reflect your original work. Perfection is not a requirement, and in case of any uncertainties regarding academic writing guidelines, you may seek clarification from your course instructor.

Engel Durumu/Uyarlama Talebi : Engel durumuna ilişkin herhangi bir uyarlama talebinde bulunmak isteyen öğrenciler, dersin öğretim elemanı ya da Nevşehir Engelli Öğrenci Birimi ile en kısa sürede iletişime geçmelidir.