PROGRAMMABLE CONTROL CIRCUITS

1	Course Title:	PROGRAMMABLE CONTROL CIRCUITS	
2	Course Code:	İSOS211	
3	Type of Course:	Optional	
4	Level of Course:	Short Cycle	
5	Year of Study:	2	
6	Semester:	3	
7	ECTS Credits Allocated:	3.00	
8	Theoretical (hour/week):	1.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	No	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Öğr.Gör. KENAN SAKA	
15	Course Lecturers:	Yrd. Doç. Dr. Salih COŞKUN, Öğr. Gör. Dr. Nurettin YAMANKARADENİZ	
16	Contact information of the Course Coordinator:	Öğr. Gör. Kenan SAKA, Yenişehir İbrahim Orhan MYO İklimlendirme ve Soğutma Teknolojileri Programı YENİŞEHİR/BURSA Tel: 0224 773 60 42, kenansaka@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	In this course the purpose is having proficiency for design otomatic control circuits to students.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	To understand functions of control system
		2	To design a control system
		3	To understand functions of PLC system
		4	To design a PLC system
		5	To learn PLC programmes
		6	To write programme with PLC
		7	To design control circuits with PLC
		8	To design control circuits with PLC for HVAC systems
		9	
		10	
21	Course Content:		

Course Content:

Week	Theoretical	Practice

1	Prepearation of open control system Open cycle of direct current motor	To learn open cycle control system To learn components of open cycle control system To make printed circuit board (PCB) To use oscilloscope Tu use multimeter To use power supply To use hand tools To use and control DC motor
2	Closed type control system cycle	To learn closed cycle control system To learn components of closed cycle control system
3	Control of system on closed cyle	To make matematical model for closed cycle control system To practice of control for open-close cycle
4	Percentage control methodology	To know devices of percentage control methodology To know devices of percentage- integral control methodology To know devices of percentage- derivative control methodology
5	PID control system	To design PID control system
6	Basic teknology of PLC	To connect PLC enter units To connect PLC exit units
7	Units of PLC	Put in operate with to connect PLC enter units Put in operate with to connect PLC exit units
8	Course Review and Midterm exam	
9	Interface programme of PLC	To use Interface programme of PLC
10	Programming of PLC	To make PLC programming with stairs diagram To make PLC programming with time control commands To makePLC programming with counter function
11	Blocks of sequential functions	To use function blocks To connect function blocks with conditions
12	PLC programming with blocks of sequential functions	To develop single branch programme with function blocks To develop multi branch programme with function blocks To select sensor and PLC To connect sensors To write programme
13	Refrigeration systems have PLC	To select sensor and PLC To connect sensors To write programme
14	HVAC systems have PLC	To select sensor and PLC To connect sensors To write programme
22	Textbooks, References and/or Other Materials:	Lecturer notes
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	30.00
Quiz	0	0.00
Home work-project	5	10.00
Final Exam	1	60.00

Total	7	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	13	1.00	13.00
Practicals/Labs	13	2.00	26.00
Self study and preperation	12	2.00	24.00
Homeworks	5	2.00	10.00
Projects	1	6.00	6.00
Field Studies	0	0.00	0.00
Midterm exams	1	4.00	4.00
Others	0	0.00	0.00
Final Exams	1	7.00	7.00
Total Work Load			94.00
Total work load/ 30 hr			3.00
ECTS Credit of the Course			3.00

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	3	4	5	3	3	2	3	2	1	2	3	0	0	0	0
ÖK2	4	5	4	5	3	3	5	2	1	3	2	3	0	0	0	0
ÖK3	5	3	4	5	3	3	2	3	2	1	4	3	0	0	0	0
ÖK4	4	5	4	5	3	3	5	2	1	3	4	3	0	0	0	0
ÖK5	5	3	4	5	3	3	2	3	3	1	4	3	0	0	0	0
ÖK6	4	3	4	5	1	1	2	4	1	1	4	3	0	0	0	0
ÖK7	4	5	1	5	3	3	5	2	1	3	4	3	0	0	0	0
ÖK8	4	5	4	5	3	3	5	2	1	3	4	3	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High