



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Agricultural Automation							
Course Code		BSM348		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course, to inform about measurement methods and devices. To give knowledge about automatic control circuits, devices, procedures used during the control variables and components, control types, measurement and final control elements properties and units, the static and dynamic operating characteristics, agricultural techniques in the greenhouse, food technology, animal production and storage.							
Course Content		Tarımda otomasyon sistemleri ve uygulamaları . Ölçme sistemlerinde hatalar ve nedenleri, ölçme sonuçlarının değerlendirilmesi, ölçme sistemleri ve dinamik ölçme sistemlerinin temeli •Ölçme sistemlerinin fonksiyonları ve kullanımı (strain gauge, recorder ve diğer data toplama değerlendirme sistemleri) •Algılayıcılar, algılama aralıkları ve duyarlılık •Dönüştürücülere ilişkin temel uygulamalar •Farklı algılayıcılar ve uygulamaları (basınç, sıcaklık, ısı, boyut, akış, ışık, ışıınım, hareket ve titreşim, tork, güç vb.) •Otomatik kontrol kavramı, kontrol sistemleri ve türleri •Temel kavramlar ve tanımlar ile kontrol sistemlerinin yapısı ve kullanım alanları •Sistemlerin davranış biçimleri ve endüstriyel kontrol sistemlerinin çalışması •Tarım tekniği içinde otomatik kontrol uygulamalarına ilişkin örnekler (sera, gıda teknolojisi) Tarım tekniği içinde otomatik kontrol uygulamalarına ilişkin örnekler (sera, gıda teknolojisi, hayvansal üretim,depolama, sulama)							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	Yüksel, İ. (1997). Otomatik Kontrol Sistem Dinamiği ve Denetim Sistemleri. Uludağ Üniversitesi, Bursa Brugman,
2	Algılayıcılar ve Dönüştürücüler. Nobel yayın Dağıtım, Ankara

Week	Weekly Detailed Course Contents	
1	Theoretical	Course description, explanation of topics, activities, evaluation methods and the functioning.
2	Theoretical	The evaluation of the size by the unit in measuring technique Systematic detection of error rate and establishment of measurement, the SI unit system and applications,
3	Theoretical	The errors and causes in the measurement systems, evaluation of measuring results, measuring systems and the foundation of a dynamic measurement system
4	Theoretical	Graphical curve adjustment, the basic electrical measurements and sensitive elements
5	Theoretical	Functions of measurement systems and their usage (strain gauges, recorders and other data collection and evaluation system
6	Theoretical	Sensors, sensing range and sensitivity
7	Intermediate Exam	midterm exam
8	Theoretical	The basic converter applications.
9	Theoretical	Different sensors and applications (Temperature, pressure, size, flow, light, radiation, motion and vibration, torque, power, etc.).
10	Theoretical	The concept of automatic control, control systems and types.
11	Theoretical	Basic concepts, definitions and application fields and structure of control systems.
12	Theoretical	The operation type of industrial control systems and behaviors of the systems.
13	Theoretical	Examples of automatic control applications in agriculture (greenhouses, food technology)
14	Final Exam	final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112



Midterm Examination	1	5	3	8
Final Examination	1	3	2	5
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To recognize of different type of measurement tools and to Select appropriate measurement tools
2	To understand the types of mechanical and electrical automatic control systems.
3	The basic converter applications.
4	Different sensors and applications (Temperature, pressure, size, flow, light, radiation, motion and vibration, torque, power, etc.).
5	Examples of automatic control applications in agriculture (greenhouses, food technology)

