AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Environmental Control in Agricultural Production Structures								
Course Code	ZTY509		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Identification and sizing of structures and parameters to be used in agricultural production preparation, production structure by types of internal parameters, external conditions, heat balance and control of the establishment, Audit and control automation systems, automation systems and system control parameters to search criteria, interpretation systems								
Course Content	Environmental requirements, temperature and humidity control, lighting, ventilation, heating and cooling requirements for the calculation in Crop and animal production structures,, Free and forced ventilation systems, different heating and cooling systems.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Project Based Study, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	Altınışık, K., 2006. Isı Yalıtımı. Nobel Yayın Dağıtım, Yayın No:954, Ankara.
2	Cotta, R.M.,. Mikhailov, M.D., 1997. Heat conduction. John Wiley & Sons. • Dağsöz, A.K., 1974. Isı Geçişi, Cilt 1, İ.T.Ü. Kütüphanesi:978, İstanbul.
3	Doğan, H., 2002. Havalandırma ve İklimlendirme Esasları. Seçkin Yayıncılık, Ankara. FAO, 1987.
4	Greenhouse Heating with Solar Energy. REUR Technical Series:1.
5	Kadayıfçılar, S., Ültanır, M.Ö., 1975. Tarımsal Binaların Isıtılmasında Kullanılan Aygıt ve Makinaların Çalışma Karakteristikleriyle Yapısal Özellikleri. A.Ü.Ziraat Fakültesi Yayınları:581, Ankara.
6	Mutaf, S., Sönmez, R., 1984. Hayvan Barınaklarında İklimsel Çevre ve Denetimi. E.Ü.Ziraat Fakültesi Yayınları:438, İzmir.
7	Özkol, N., 1997. Uygulamalı Soğutma Tekniği. TMMOB makine Mühendisi Odası yayın No:115, Ankara.
8	Öztürk, H., 2008. Seralarda iklimlendirme Tekniği. Hasad Yayıncılık, İstanbul.
9	Yüksel, A.N., 2004. Sera Yapım Tekniği. Hasad Yayıncılık, İstanbul.

Week	Weekly Detailed Course Contents	
1	Theoretical	Course Introduction
2	Theoretical	Identification of agricultural production structures
3	Theoretical	The parameters used in the sizing of agricultural production structures
4	Theoretical	The parameters used in the sizing of agricultural production structures
5	Theoretical	Internal parameters according to the type of production structures
6	Theoretical	External conditions
7	Theoretical	Establishment and control of the heat balance
8	Theoretical	Sizing the heat balance parameters and sample problems and solutions
9	Intermediate Exam	MID-TERM EXAM
10	Theoretical	Audit and control automation systems
11	Theoretical	Automation systems, the criteria to be searched.
12	Theoretical	Control parameters of the Automation systems
13	Theoretical	Interpretation of the automation systems.
14	Theoretical	Sample problems and solutions related to system control
15	Theoretical	Other applications
16	Theoretical	FİNAL EXAM

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	2	98
Lecture - Practice	14	4	2	84
Midterm Examination	1	6	2	8
Final Examination	1	8	2	10
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to analyze and evaluate the effects of environmental factors on plants in agricultural production structures.
2	To be able to use new approaches and modern technologies on planning of proper environmental control systems for building systems and determining the environmental requirements for agricultural production structures.
3	To be able to resource environmental problems in agricultural production structures and solutions of these problems, to develop new approaches and to transfer the results of these studies.
4	To be able to follow and to transfer developments and modern applications on environmental control in the agricultural production structures.
5	To know the ventilation systems (natural and mechanical ventilation systems) used agricultural production structures and structural properties of them.

Programme Outcomes *(Agricultural Structures and Irrigation Master)*	
1	Ability to use, evaluate and improve the knowledge gained from field of study at an expert level
2	Ability to reach necessary the knowledge
3	To able to conduct scientific studies (research) related to the field
4	Ability to consider academical and ethical values the studies
5	Ability to improve editing method and evaluate the results of researches
6	The studies, the ability to reach result and application, develop new approaches
7	A topic in the field of written, verbally and visually as the ability to express
8	Effective use of Turkish language and ability to communicate in a foreign language both written and verbal

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P2	5	5	4	4	4
P3	4	4	4	5	4
P4	5	5	4	4	5
P5	4	4	5	5	4
P6	5	5	4	5	5
P7	5	5	4	5	5
P8	5	5	5	5	5