AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Wastewater Resuse in Agriculture							
Course Code	ZTY529			Couse Level	Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Teach to the possibilities of use of treated wastewater in irrigation, strategies, and the potential negative effects on cropand soil							
Course Content	Sources of wastewater; wastewater treatment methods; quality criteria for wastewater reuse; effects of wastewater reuse on environment and health; regulations and guidelines for wastewater reuse in Turkey and other countries; case studies in Turkey and other countries.							
Work Placement	N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion				
Name of Lecturer(s)								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Wastewater Engineering: Treatment and Reuse, G. Tchobanoglous, F. L. Burton, H. D. Stensel
2	Wastewater Reclamation and Reuse, Takashi Asano
3	Pescod, M. B., 1992. Wastewater treatment and use in agriculture, FAO irrigation and drainage paper 47
4	Tanji, K. K. and Kielen, N. C., 2002. Agricultural drainage water management in arid and semi-arid areas, FAO irrigation and drainage paper 61
5	Pescod, M. B. and Arar, A., 1998. Treatment and use of sewage effluent for irrigation, Butterworths
6	Uslu, O. ve Türkman, A., 1987. Water pollution and control, the Prime Ministry Environment General Directorate, Education Series
7	Topbaş, M. T.; Brohi, A. R.; Karaman, M. R., 1998. Environmental Pollution, Ministry of Environment, Ankara
8	Gazette. 2004. Water Pollution Control Regulation, Gazette No: 25687, Date: 31.12.2004

Week	Weekly Detailed Course Contents	
1	Theoretical	Sources of wastewater
2	Theoretical	Physical, chemical and biological characteristics of wastewater
3	Theoretical	Physical wastewater treatment methods
4	Theoretical	Biological wastewater treatment methods
5	Theoretical	Advanced wastewater treatment methods
6	Theoretical	Quality criteria for wastewater reuse in irrigation
7	Theoretical	Effects of wastewater reuse on environment
8	Intermediate Exam	MIDTERM EXAM
9	Theoretical	Effects of wastewater reuse on the health
10	Theoretical	Case studies in Turkey
11	Theoretical	Case studies in other countries
12	Theoretical	Regulations and guidelines for wastewater reuse in Turkey
13	Theoretical	Regulations and guidelines for wastewater reuse in other countries
14	Theoretical	Climate change and future of wastewater reuse
15	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	10	3	182
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 explain the importance/benefits of treated waste water
2	To explain the features and quality parameters of treated wastewater
3	To explain the possible health risks associated with the use of recycled water for irrigation and the positive/negative effects on soil-water-plant system
4	To understand conditions of a successful irrigation with waste water
5	To know fundamentals of wastewater treatment

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	4	5	5	5
P2	5	3	5	5	5
P3	5	5	3	3	4
P4	3	2	3	3	4
P5	3	5	3	5	3
P6	3	2	3	3	3
P7	3	5	3	1	3
P8	5	5	3	1	2