



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Advanced Manufacturing Techniques in Agricultural Machinery							
Course Code		ZTM615		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	7	Workload	171 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The purpose of this course is to teach advanced manufacturing methods used in farm machinery and discussion of developments in this field.							
Course Content		Basic information about advanced manufacturing methods, ultrasonic machining, powder jet machining, water jet machining, chemical machining, electro-chemical machining, electro-discharge machining, laser beam machining, plasma arc machining, explosives, forming, powder metallurgy, advanced surface treatment and other advanced manufacturing methods							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation)					
Name of Lecturer(s)									

Assessment Methods and Criteria

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

Recommended or Required Reading

1	"Manufacturing Engin. & Technology". Kalpakjian,S., Schmid, S., 2001. Prentice Hall, 4 Th. Edi.
2	"Advanced Machining Technology Handbook", Brown, J., 1998. McGraw-Hill , NY
3	"Materials and Processes in Manufacturing", DeGarmo, E.P., Black, J.T., Kohser, R.A., 1997.Prentice-Hall, 8 Th. Edition, ISBN: 0-13-261371-9

Week	Weekly Detailed Course Contents	
1	Theoretical	Classification of advanced manufacturing methods
2	Theoretical	Classification of advanced manufacturing methods
3	Theoretical	Dust jet machining, principles, types and applications
4	Theoretical	Water jet machining, principles, types and applications
5	Theoretical	Chemical processing, principles, types and applications
6	Theoretical	Electro-chemical processing, principles, types and applications
7	Intermediate Exam	Midterm Exam
8	Theoretical	Process with an electro-erosion , principles, and applications
9	Theoretical	Processing with the laser beam , principles, types and applications
10	Theoretical	Electron beam processing, principles, types and applications.
11	Theoretical	Plasma arc process, principles, and applications
12	Theoretical	Forming y explosives, principles, types and applications
13	Theoretical	Powder metallurgy, principles, types and applications
14	Theoretical	Advanced surface treatment, principles, types and applications.
15	Theoretical	Other methods
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	2	56
Lecture - Practice	14	1	2	42
Assignment	1	0	45	45
Reading	1	0	20	20
Midterm Examination	1	2	2	4



Final Examination	1	2	2	4
Total Workload (Hours)				171
[Total Workload (Hours) / 25*] = ECTS				7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Knowledge of basic information about advanced manufacturing methods
2	Ultrasonic processing, principles, knowledge of basic information about the types and applications
3	Processing with a jet of water jet and dust , principles, basic information about the types and applications
4	Chemical, electro-chemical process, principles, knowledge about the types and applications
5	With an electro-erosion process, principles, basic information about the types and applications
6	Laser and electron beam processing, principles, basic information about the types and applications
7	Plasma arc machining, principles, information about the types and applications
8	Advanced surface treatment principles, knowledge of basic information about the types and applications

Programme Outcomes (Agricultural Machinery Doctorate)

1	Identification, formulation and solving the problems in the field of Agricultural Machinery
2	The ability to use modern engineering tools and techniques
3	The ability to use the information, which is obtained by following the scientific and technological developments, in the academic life and practice.
4	The ability to evaluate multi-faced relationship between them by understanding interaction among agricultural technology, soil, plants and animals
5	Professionalism and ethical responsibility
6	The ability to work in disciplinary and multi-disciplinary teams
7	The ability to communicate effectively
8	The ability to do research for accessing information and to use data base and other resources
9	The ability to do analyze and interpret the experimental results and the design of experiment
10	The ability to identify and interpret knowledge of current professional issues and events
11	The ability to get aware the universal and social effects of engineering solutions and applications
12	Accordance with the requirements of science and technology, ability to use scientific knowledge creative

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

	L1	L2	L3	L4	L5	L6	L7	L8
P1	4	4	4	4	4	4	4	4
P2	4	4	4	4	4	4	4	4
P3	4	4	4	4	4	4		4
P4	4	4	4	4	4	4	4	4
P5	4	4	4	4	4	4	4	4
P6	4	4	4	4	4	4	4	4
P7	4	4	4	4	4	4	4	4
P8	4	4	4	4	4	4		4
P9	4	4	4	4	4	4	4	4
P10	4	4	4	4	4	4	4	4
P11	4	4	4	4	4	4	4	4
P12	4		4	4	4	4	4	4

