AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Precision Engineering and Production Metrology								
Course Code	MME516		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	195 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The aim of this course is to inform students about precision engineering and production metrology.								
Course Content	Development tendencies in precision engineering and metrology and precision machining production techniques will be studied on								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion, Case Study, Project Based Study, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Quiz	4	15
Assignment	5	5
Term Assignment	1	5

Recommended or Required Reading	
1	Whitehouse D.J., “Handbook of Surface and Nanometrology”, Institute of Physics, Bristol, (published in 1994), 2003, ISBN: 0-7503-05835, 1150
2	Durakbasa M.N., “Geometrical Product Specifications and Verification for the Analytical Description of Technical and Non-Technical Structures”, November 2003, printed in Austria (TU Wien: Abteilung Austauschbau und Messtechnik), ISBN: 3-901888-26-8, 152
3	Pfeifer T., “Production Metrology”, München, Wien: Oldenbourg Wissenschaftsverlag, August 2002, ISBN: 3-486-25885-0, 421
4	Smith G.T., “Industrial Metrology: Surfaces and Roundness”, Springer Verlag, 2002, ISBN: 1-85233-507-6, 336.

Week	Weekly Detailed Course Contents	
1	Theoretical	Development tendencies in precision engineering and metrology
2	Theoretical	Precision machining production techniques
3	Theoretical	Precision machining limits and measurement sensitivities
4	Theoretical	Geometrical product specifications and verification
5	Theoretical	Geometrical product specifications and verification
6	Theoretical	Geometrical tolerances
7	Theoretical	Statistical tolerancing in interchangeable manufacturing
8	Intermediate Exam	Midterm Exam
9	Theoretical	Coordinate metrology and coordinate measuring machines
10	Theoretical	Coordinate metrology and coordinate measuring machines
11	Theoretical	Coordinate measurement for intelligent manufacturing environment
12	Theoretical	Coordinate measurement for intelligent manufacturing environment
13	Theoretical	Surface analysis and evaluation of non-technical structures
14	Theoretical	Industrial applications of coordinate measuring machines
15	Theoretical	Coordinate metrology for evaluation of non-technical surfaces
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	2	4	96
Assignment	5	0	3	15
Term Project	1	15	10	25

Quiz	4	4	1	20
Midterm Examination	1	15	2	17
Final Examination	1	20	2	22
			Total Workload (Hours)	195
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to apply knowledge of mathematics, science and engineering to the field of Mechanical Engineering ,
2	To be able to analyse and as a result improve the systems,
3	To be able to determine of engineering problems,
4	To be able to comprehend metrology in engineering aspects
5	To be able to use engineering techniques and modern engineering tools.

Programme Outcomes *(Mechanical Engineering (English) Master)*	
1	To be able to access wide and deep information with scientific researches in the field of Engineering, evaluate, interpret and implement the knowledge gained in his/her field of study
2	To be able to complete and implement “limited or incomplete data” by using the scientific methods
3	To be able to consolidate engineering problems, develop proper method(s) to solve and apply the innovative solutions to them
4	To be able to develop new and original ideas and method(s), to develop new innovative solutions at design of system, component or process
5	To be able to gain comprehensive information on modern techniques, methods and their borders which are being applied to engineering
6	To be able to design and apply analytical, modeling and experimental based research, analyze and interpret the faced complex issues during the design and apply process
7	To be able to gain high level ability to define the required information and data
8	To be able to work in multi-disciplinary teams and to take responsibility to define approaches for complex situations
9	To be able to transfer of the process and results of studies at national and international environments systematic and clear verbal or written
10	To be able to be aware of social, scientific and ethical values guarding adequacy at all professional activities and at the stage of data collection, interpretation, and announcement
11	To be able to become aware of new and developing application of profession and ability to analyze and study on those applications
12	To be able to interpret engineering application’s social and environmental dimensions and it’s compliance with the social environment

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	3	4	3	5	5
P2	3	4	3	4	4
P3	2	4	5	5	5
P4	3	4	5	4	5
P5	4	5	5	3	4
P6	3	4	4	5	4
P7	4	3	3	4	5
P8	3	4	5	3	5
P9	3	3	5	5	4
P10	4	5	5	4	4
P11	3	4	4	5	4
P12	5	4	3	5	5