AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Computer Aided Design and Manufacturing								
Course Code	MME613		Couse Level		Third Cycle (Doctorate Degree)				
ECTS Credit	9	Workload	229 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Learning manufacturing techniques, Parts and mold design according to manufacturing techniques Forming designed parts and molds using computer programs.								
Course Content	Computer aided technical drawing, production methods, solid modeling mold and core design, computer aided manufacturing.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Project Based Study, Individual Study								
Name of Lecturer(s)									

Prerequisites & Co-requisities	
Language Requisite	Yes

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	Computer Aided Manufacturing, T. K. Kundra Tata McGraw-Hill Education

Week	Weekly Detailed Course Contents	
1	Theoretical	Drawing: computer aided two dimension technical drawing
2	Theoretical	Projection types and mechanical part views.
3	Theoretical	Production methods: Sheet metal cutting and forming, hot and cold forming (forging)
4	Theoretical	Rolling, extrusion, welding, casting, powder metallurgy, metal and plastic injection molding
5	Theoretical	Solid Modeling: Solid modeling of parts which will be produced
6	Theoretical	Making solid model on the base model using geometric prism
7	Theoretical	Surface modeling principles and application
8	Intermediate Exam	Midterm Exam
9	Theoretical	Making mold cavity according to designed solid model
10	Theoretical	Making mold cavity according to designed solid model
11	Theoretical	Core, core box and core print design for production cavities
12	Theoretical	Rise and gate design for molds
13	Theoretical	CAM: Tool and tool path selection, determination of cutting velocity and speed of advance, defining of tool path
14	Theoretical	Defining cutting parameters of solid model or mold cavity virtually and converting NC codes for milling
15	Theoretical	Animating mechanical design and production
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	5	4	144
Assignment	5	0	3	15
Term Project	1	15	10	25

Quiz	4	3	1	16
Midterm Examination	1	15	2	17
Final Examination	1	10	2	12
			Total Workload (Hours)	229
			[Total Workload (Hours) / 25*] = **ECTS**	9
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Drawing part views with computer according to technical drawing rules
2	Comprehending manufacturing techniques for mechanical and metal Technologies
3	Making 3D solid model from 2D sketches
4	Drawing solid models of complex parts
5	5. Ability to design molds and cores of previously designed solid models
6	6. Milling designed parts, molds, and core boxes within virtual environment

Programme Outcomes *(Mechanical Engineering (English) Doctorate)*	
1	1. In Mathematics, natural sciences and mechanical engineering, department has the sufficient infrastructure; the ability to use the theoretical and practical information for engineering solutions
2	2. The ability to identify, define, and solve the formula for complex engineering problems; the ability to select and apply for the appropriate analytical methods and modelling techniques
3	3. To meet desired needs of a system, system component, or process, analysing and designing skill under realistic constraints; in this respect, the ability to apply the methods of modern design
4	4. The ability to use and choose modern techniques and tools for required engineering applications and; the ability to use information technology effectively
5	5. The ability to design the experiment, collect the data for the experiment and interpret to analysing results
6	6. The ability to use computer software and hardware information, access to information and other information sources
7	7. The ability to work individually and with multidisciplinary teams effectively, taking responsibility self-confidence for complex situations
8	8. The ability to communicate with foreign colleagues by having high level of foreign language knowledge in the field of engineering
9	9. Monitoring the science and technology developments and the ability to renew itself with innovative ideas constantly
10	10. Professional and ethical responsibility awareness
11	11. Having an adequate information and awareness in the subjects of occupational safety, occupational health, social security rights, quality control and management issues of environmental protection
12	12. The ability to appreciate the effects of engineering solutions and applications in universal and social dimensions
13	13. The ability to be enlightened to the experts or non-expert audience groups on the issues related with engineering problems and solutions written and oral
14	14. The ability to have adequate knowledge and skills in the project development and application, manage the activities planning, including the projects to the employees having the responsibility of the project by increasing vocational awareness

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
P1	3	3	3	3	3	3
P2	4	4	4	4	4	4
P3	5	5	5	5	5	5
P4	3	5	5	5	5	5
P5	4	4	4	4	4	4
P6	5	3	3	3	3	3
P7	3	3	3	3	3	3
P8	4	4	4	4	4	4
P9	5	5	5	5	5	5
P10	5	5	5	5	5	5
P11	4	4	4	4	4	4
P12	3	3	3	3	3	3
P13	4	3	4	3	3	3
P14	5	4	5	4	4	4