

Course name: MCE 530- Advanced Computer Aided Design					Department: Mechanical Engineering			
Semester	Methods of Education							Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Project/Field Study	Homework	Other	Total	
Fall	42	48		55	55	25	225	7,5
<b>Language</b>	English							
<b>Compulsory/Elective</b>	Elective							
<b>Prerequisites</b>	None							
<b>Course Contents</b>	Sketcher, Part Design, Generative Shape Design, Weld Design, Sheet Metal, Assembly Modelling, Animations and photorealistic renderings, Drafting, Weld Design, Sheet Metal, Mold design, Collaboration tools, SolidWorks Product Data Management (PDM).							
<b>Course Objectives</b>	The purpose of this course, graduate students Solidworks, Unigraphics, Catia and so on. modeling of complex systems using computer-aided design software and give information at an advanced level on performing of systems engineering analysis.							
<b>Learning Outcomes and Competences</b>	1. Understand the importance of industrial design. 2. Learn the differences between 2D/3D modeling software. 3. Perform a 3D design of complex systems. 4. Create manufacturing drawings of the 3D models, 5. Modeling in SolidWorks environment of a system.							
<b>Textbook and /or References</b>	1. Mahmut Gülesin, Tevfik Ay, Abdülkadir Güllü, Abdulmecit Gültaş, Onuralp Uluer, "SolidWorks ile Uygulamalar", Asil Yayınevi, 2009. 2. Sevilay Turgut, Mustafa Turgut, "SolidWorks CosmosWorks-CosmosMotion-MoldFlow-SolidCam", Seçkin Yayıncılık, 2009. 3. İhsan Toktaş, Ders Notları, 2012. 4. Mahmut Gülesin, "Catia V5 R19 ile Tasarım ve Modelleme", Asil Yayın dağıtım, 2009. 5. Mustafa Turgut, "CATIA İle İmalat ve Analiz", Seçkin Yayıncılık, 2008. 6. Arif Gök, Kadir Gök, Güran Ünal, "CATIA Uygulamaları", Seçkin Yayıncılık, 2007.							
<b>Assessment Criteria</b>					<b>If any, mark as (X)</b>			<b>Percentage (%)</b>
	Midterm Exams				X			30
	Quizzes							
	Homeworks							
	Projects				X			20
	Term Paper							
	Laboratory work							
	Other							
	Final Exam				X			50
<b>Instructors</b>	<b>Assist. Prof. Dr. İhsan TOKTAŞ (ihstantoktas@hotmail.com)</b>							
<b>Week</b>	<b>Subject</b>							
1	The aim of the course, the content and scope, the concept of computer-aided industrial design and production							
2	<b>Solidworks interface:</b>  <b>Sketcher:</b> <ol style="list-style-type: none"> <li>Main and auxiliary commands</li> <li>Create a 2D drawing</li> <li>Using the parametric SolidWorks</li> <li>Stages of 2D drawing</li> <li>Dimensioning editing</li> </ol>							
3	<b>Part Design:</b> <ol style="list-style-type: none"> <li>Basic Modeling Commands</li> <li>Boss through the creation of solid (Extrude)</li> <li>Creating a rotating solid (Revolve)</li> <li>Creating a sweeping solid with the help of a road and profiles</li> </ol>							

	<ul style="list-style-type: none"> <li>e. To create solid by switching between profiles (Loft)</li> <li>f. Hole wizard</li> <li>g. Keyboard shortcuts</li> <li>h. Plane Command</li> <li>i. Using Linear and Circular Patterns</li> <li>j. Mirror, Simmetry, Translate, Rotate</li> </ul>
4	<b>Generative Shape Design.</b>
5	<b>Assembly Modelling:</b> <ul style="list-style-type: none"> <li>a. Calling the assembly page</li> <li>b. Standard Mate and Advanced Mate commands</li> <li>c. Assembly fault detection</li> <li>d. Assembly operation (simulation)</li> <li>e. Assembly made into animation as avi Saving</li> </ul>
6	<b>Animations and photorealistic renderings.</b>
7	<b>Midterm Exam</b>
8	<b>Implementation of the basic mechanisms of animation.</b>
9	<b>Drafting:</b> <ul style="list-style-type: none"> <li>a. Part removal of appearance</li> <li>b. Sectional views taken</li> <li>c. Detail and Clipping appearance</li> <li>d. Tolerance, treatment of surface and welding observations</li> <li>e. The use of geometric tolerances</li> <li>f. Datum fetaures ile çalışmak</li> <li>g. Dimensioning</li> <li>h. Working in blocks</li> <li>i. Dimensionation lines, font settings and standardization of dimensioning arrows</li> <li>j. To prepare and to invoke the standard letterhead</li> <li>k. The creation of tables of Assembly parts</li> <li>l. Create a list of materials</li> </ul>
10	<b>Weld Design.</b>
11	<b>Sheet Metal.</b>
12	<b>Mold design.</b>
13	<b>Collaboration tools, SolidWorks Product Data Management (PDM)</b>
14	Modeling in SolidWorks environment of a system.
Final Exam, Project delivery	