DESING FOR MANUFACTURABILITY AND ASSEMBLY

1	Course Title:	DESING FOR MANUFACTURABILITY AND ASSEMBLY
2	Course Code:	MAK4060
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	8
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. MUSTAFA CEMAL ÇAKIR
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	cemal@uludag.edu.tr 0224 2941958 U.U. Müh-Mim Fak. Makine Müh. Böl. BURSA
17	Website:	
18	Objective of the Course:	To provide technical and practical information on DFM and DFA rules
19	Contribution of the Course to Professional Development:	The ability to use DFMA principles, which will increase productivity in many industries, is gained.
20	Learning Outcomes:	
	1	Describe the needs of DFX applications.
	2	Understand assembly sequence. Understand the importance of time and cost in assemblying operations.
	3	Define the principles of design for assembly.
	4	Understand the practical applications of DFA rules.
	5	Interpret the economical gains from DFA applications
	6	Understand principles of metal cutting operations.Evaluate the design oriented problems encountered in metal cutting operations.
	7	Understand the practical applications of DFM rules.
	8	Interpret the economical gains from DFM applications.
	9	
	10	
21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	General information on DFX applications	
2	Assembly methods and processes	
3	Design for assembly methodology	
4	Rules for DFA and their practical applications	
5	Economical evaluations of DFA applications	

6	Re-design case study for a sample component	
7	General information about metal cutting	
8	Repeating courses	
9	Problems encountered in metal cutting	
10	Design for manufacturing methodology	
11	DFM rules and their practical applications	
12	Economical Analysis of DFM applications	
13	Case studies for DFA & DFM	
14	Presentations about re-design work of sample components	

22	Textbooks, References and/or Other Materials:	G. Boothroyd, Product design for Manufacture and Assembly, Marcel and Dekker, 2001. J.G. Bralla, Design for manufacturability handbook, Mc Graw Hill, 1999. M.M. Andreasen, S. Kahler, L. Lund, Design for assembly, Springer-Verlag, 1983
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	25.00
Quiz	0	0.00
Home work-project	1	25.00
Final Exam	1	50.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		50.00
Contribution of Final Exam to Success Grade		50.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	6	3.00	18.00
Homeworks	1	15.00	15.00
Projects	1	5.00	5.00
Field Studies	6	3.00	18.00
Midterm exams	1	2.00	2.00
Others	2	1.00	2.00
Final Exams	1	2.00	2.00
Total Work Load			90.00
Total work load/ 30 hr			3.00
ECTS Credit of the Course			3.00

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	3	4	0	0	0	2	0	0	0	0	0	0	0	0	0
ÖK2	5	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0
ÖK3	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	3	5	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK5	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	5	4	4	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK7	4	0	5	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK8	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**