COMPUTER INTEGRATED MANUFACTURING

1	Course Title:	COMPUTER INTEGRATED MANUFACTURING
2	Course Code:	END3069
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	2
11	Prerequisites:	None
12	Language:	English
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç. Dr. İlker KÜÇÜKOĞLU
15	Course Lecturers:	Doç. Dr. İlker Küçükoğlu Araş. Gör. Dr. Seval Ene Yalçın
16	Contact information of the Course Coordinator:	orbak@uludag.edu.tr, 0(224)2942086, Uludağ Üniversitesi Endüstri Mühendisliği Bölümü Oda Y315 Görükle, 16059, Bursa
17	Website:	http://endustri.uludag.edu.tr/~orbak/END3069.html
18	Objective of the Course:	Provide information and in depth knowledge on the fundamentals of computer integrated production and manufacturing systems and their components.
19	Contribution of the Course to Professional Development:	Students attain knowledge in both theoretical and practical applications of CIM systems which is commonly used in the manufacturing sector.
20	Learning Outcomes:	
	1	Students grasp the design of computer integrated manufacturing systems.
	2	Students learn the role of computers and databases in manufacturing systems.
	3	Students grasp the idea of concurrent engineering in product design and development.
	4	Students learn how to design flexible manufacturing systems and their advantages.
	5	
	6	
	7	
	8	
	9	
	10	
21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	General information on computer integrated manufacturing systems	
2	Product design, computer aided design	AutoCAD
3	Geometric modelling	AutoCAD

4	Concurrent engineering	AutoCAD
5	Process planning	AutoCAD
6	Automated material handling and storage systems	VB.NET
7	Automated storage and retrieval systems	VB.NET
8	CNC part programming	CNC part programming
9	CNC part programming	CNC part programming
10	Programmable logic controllers	PLC programming
11	Group Technology	PLC programming
12	Cellular manufacturing systems	ProModel simulation
13	Flexible manufacturing systems	ProModel simulation
14	Flexible manufacturing systems	ProModel simulation

22	Textbooks, References and/or Other Materials:	• Tien-Cien Chang, R. A. Wysk, Hsu-Pin Wang, “Computer Aided Manufacturing”, 2nd Edition, Prentice Hall, 1998. • Nanua Singh, “Systems Approach to Computer Integrated Design and Manufacturing”, John Wiley, 1996. • M. P. Grover, “Automation, Production Systems, and Computer Integrated Manufacturing”, Prentice Hall, 1987. • ProModel Users Guide, Promodel Corp., 1995.
23	Assesment	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	3.00	42.00
Homeworks	2	24.00	48.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	2.00	2.00
Others	0	0.00	0.00
Final Exams	1	2.00	2.00
Total Work Load			152.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

Quiz 0 0.00
Final Exam 1 60.00
Contribution of Term (Year) Learning Activities to Success Grade 40.00
Contribution of Final Exam to Success Grade 60.00
Measurement and Evaluation Techniques Used in the Course Midterm exam, homeworks and final exam are performed for evaluation

24 ECTS / WORK LOAD TABLE

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	5	0	0	0	5	5	0	0	2	0	0	0	0	0	0	0
ÖK2	4	0	0	0	3	5	3	5	4	0	0	0	0	0	0	0
ÖK3	4	0	0	0	3	5	4	0	3	0	0	0	0	0	0	0
ÖK4	4	0	0	0	3	5	4	0	4	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