METAL CUTTING

1	Course Title:	METAL CUTTING
2	Course Code:	MAK3038
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	6
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:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. M.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 about metal cutting.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Describe the principles of metal cutting.
	2	Describe and interpret the metal cutting theories. Understand the theory of chip forming.
	3	Understand and interpret the affects of cutting forces onto chip forming and calculate the power needed.
	4	Define the positive and negative effects of various factors (such as entering angle and nose radius) into metal cutting processes.
	5	Recognise tool wear mechanisms and interpret the causes of each tool wear types, discuss the remedies.
	6	Understand the economical factors effecting the metal cutting operations.
	7	Recognise cutting tool selection, know how to use a catalogue in selection of cutting parameters.
	8	Interpret the machinability of various workpiece materials.
	9	
	10	

21	Course Content:

Course Content:		
Week	Theoretical	Practice
1	Introduction to metal cutting	
2	Historical development of metal cutting and cutting tools	
3	Metal cutting theories	

4	Theoretical analysis of metal cutting processes, Shear plane	
5	Chip forming, effects of tool geometry, cutting forces and heat in metal cutting	
6	Effects of nose radius and entering angle in metal cutting	
7	Tool wear, wear mechanisms	
8	Repeating courses and midterm exam	
9	Economics of metal cutting	
10	Cutting tool selection	
11	Cutting tool materials	
12	Workpiece materials	
13	Machinability of various materials	
14	Hard part machining	

22	Textbooks, References and/or Other Materials:	M. Cemal ÇAKIR, Modern Talaşlı İmalatın Esasları, Vipaş, 1999. Modern Metal Cutting, Toftersa Tryckeri, AB, 1994. Metal Cutting, P.K.Wright, E.M. Trent, Butterworth-Heinemann, 2000.
23	Assesment	

TERM LEARNING ACTIVITIES	NUMBE	WEIGHT		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical Homework-project	1	10140	2.00	28.00
Practicals/Labs		0	0.00	0.00
Self study and preperation	3	104.00	5.00	20.00
Homeworks		1	15.00	15.00
Success Grade Projects		0	0.00	0.00
Field Studies		5	3.00	15.00
Total Midterm exams		100.00	2.00	2.00
Others		3	2.00	6.00
Course Final Exams		1	4.00	4.00
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	4	5	3	0	3	0	2	0	0	0	0	0	0	0	0	0
ÖK2	0	4	3	0	4	0	1	0	0	0	0	0	0	0	0	0
ÖK3	5	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	4	5	0	0	4	0	0	0	0	0	0	0	0	0	0	0

ÖK5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK6	4	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	4	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**