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**
Theoretical	1	100
Practicals/Labs		0
Self study and preperation	3	100
Homeworks		1
Projects		0
Field Studies		5
Midterm exams	1	100
Others		3
Final Exams	1	100

Activites	Number	Duration (hour)	Total Work Load (hour)
Home work-project	14	2.00	28.00
Total	0	0.00	0.00
Total	4	5.00	20.00
Success Grade	1	15.00	15.00
Total	0	0.00	0.00
Course	5	3.00	15.00
Midterm exams	1	2.00	2.00
Others	3	2.00	6.00
Final Exams	1	4.00	4.00
24 ECTS / WORK LOAD TABLE			
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**