METAL CUTTING THEORY AND APPLICATIONS

1	Course Title:	METAL CUTTING THEORY AND APPLICATIONS
2	Course Code:	MAK5270
3	Type of Course:	Optional
4	Level of Course:	Third Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
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. Yahya Işık
15	Course Lecturers:	Prof. Dr. Yahya IŞIK
16	Contact information of the Course Coordinator:	yahya@uludag.edu.tr tel:02242941919
17	Website:	
18	Objective of the Course:	1. To understand the principles and terminology of metal removal processes. 2. To gain metal cutting mechanics. 3. During tool life, wear, force, surface roughness and temperature during metal cutting. 4. To explain the importance of cutting fluids. 5. To gain chip mechanisms and cutting coating methods. 6. To give general information about micro chip removal and CAM.
19	Contribution of the Course to Professional Development:	1. Can obtain the basics of metal cutting. 2. Can explain the force, wear and surface roughness during machining. 3. Understands the mechanics of metal cutting.
20	Learning Outcomes:	

	1	To define and apply advanced Mechanical Engineering concepts
	2	To carefully review the literature in line with the research project and to establish a link between the previous literature with its own results.
	3	To obtain detailed information through scientific research in his field of study; compare, evaluate and apply results
	4	Designing and conducting independent research projects
	5	To develop awareness of continuous learning with modern technology
	6	To be able to express his ideas and findings about the research subject effectively in oral and written form
	7	Apply knowledge to a specific specialty of mechanical engineering and make use of a variety of CAD / CAM / CAE tools

		8	Demonstrate professional and ethical behavior responsibility
		9	
		10	
21	Course Content:		
	Course Content:		
Week	Theoretical	Practice	
1	Basic principles of metal cutting		
2	Cutting terminology		
3	Metal cutting mechanics		
4	Tool life and tool wear		
5	Cutting tool materials		
6	Cutting tool coding systems		
7	Cutting fluids		
8	Surface roughness		
9	Chip types		
10	Cutter coating methods		
11	Additive manufacturing		
12	Cutting parameters		
13	Computer aided manufacturing		
14	Materials:		
15	Midterm exams		
16	Assesment		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	3.00	42.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	1.00	1.00
Others	0	0.00	0.00
Final Exams	1	96.00	96.00
Total Work Load			181.00
Total work load/ 30 hr			6.03
ECTS Credit of the Course			6.00

Quiz	0	0.00
Final Exam	1	60.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Research and presentation on a topic related to metal cutting principles and final exam

24	**ECTS / WORK LOAD TABLE**

1. Milton C. Shaw, 2005.
2. Metal cutting theory and practice / David A., 1959-
2000.
3. Metal cutting mechanics / Viktor P. Astakhov, Viktor P.

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	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	5	5	0	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK3	4	5	3	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	4	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	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**				