

a) General			
<i>School</i>	ENGINEERING		
<i>Academic unit</i>	MECHANICAL ENGINEERING		
<i>Level of studies</i>	Undergraduate		
<i>Course code</i>	MM002Y06	<i>Semester</i>	2
<i>Course title</i>	Machining technology		
<i>Independent teaching activities</i>	<i>Weekly teaching hours</i>		<i>ECTS</i>
Lectures	-		3.5
Laboratory exercises	3		
<i>Course type</i>	Special background		
<i>Course category</i>	Compulsory		
<i>Prerequisite courses</i>	-		
<i>Language of instruction and examinations</i>	Greek		
<i>Is the course offered to Erasmus students</i>	No		
<i>Course website (url)</i>	http://mech.uniwa.gr/wp-content/uploads/sites/141/2019/10/mechtech1.pdf		
b) Learning outcomes and general competences			
b1. Learning outcomes			
Upon successful completion of this course, the student will be able to:			
<ul style="list-style-type: none"> - Acquire and follow general principles as well as special regulations for health and safety, as required to be applied in manufacturing production. - Recognize key parameters affecting material removal processes, i.e., cutting tool geometry, chip formation mechanism, cutting temperature and cutting forces. - Design and evaluate the quality of machined surfaces and select the appropriate measuring technique/apparatus. - Recognize and select suitable material removal operations, as well as the corresponding tools (i.e., number of cutting edges, material) for a given material, with reference to geometric dimensioning and tolerancing quality requirements. - Combine / select, advantageous combination for process parameters according to the material to be machined, for each of the conventional material removal processes (drilling, turning, milling, grinding, etc). - Prepare and deliver accurate process plans for producing engineering parts and products. 			
b2. General competences			
<ul style="list-style-type: none"> - Individual case studies / projects - Group case studies / projects - Product design and manufacturing 			
c) Syllabus			
<p>General principles and special regulations on health and safety imposed in manufacturing/production areas. Use of measuring instruments and related apparatus to determine the geometrical features of machined products. Dimensional tolerances and assemblies. Geometric dimensioning and Tolerancing (GD&T). Quality control. Introduction to material removal processes (Distinguishing between conventional / non-conventional processes. General principles of metal-cutting operations and cutting tools). Material removal with geometrically defined cutting tools: turning, drilling, milling, grooving, reaming and grinding. Material removal with abrasive cutting tools: grinding and superfinishing operations. Setup sheet and</p>			

documentation / process planning for manufacturing parts and assemblies.		
d) Teaching and learning methods - Evaluation		
Delivery	Face-to-face.	
Use of information and communications technology	<ul style="list-style-type: none"> - Commercial/free/open source software - Multimedia applications - MS Teams/Moodle/e-class 	
Teaching methods	<i>Activity</i>	<i>Semester workload</i>
	Lectures	0
	Tutorials	13
	Laboratory exercises	26
	Computational exercises	0
	Individual work	65
	Course total	104
Student performance evaluation	Intermediate assessment and final (written) examination in laboratory projects/exercises. Delivery of individual and group projects per case study.	
e) Suggested bibliography		
<ol style="list-style-type: none"> 1. Στεργίου Ι. Στεργίου Κ. Τεχνολογία Κατεργασίας Μετάλλων. Σύγχρονη Εκδοτική. 2. Αντωνιάδης Αριστομένης. Μηχανουργική Τεχνολογία. Τόμος Β, Εκδ. Τζιόλα. 3. Braun Herwig. (Μετάφραση Βούλγαρης Μ.). Βασική Μηχανολογία. Εκδοτικός οίκος ΙΩΝ 4. Πετρόπουλος Πέτρος. Μηχανουργική Τεχνολογία. Τόμος ΙΙ-Ι, Εκδ. Ζήτη. <p>Related Journals: Journal of Manufacturing Processes, Journal of Materials, Processing Technology, CIRP Annals – Manufacturing Technology, CIRP Journal of Manufacturing Science and Technology, Materials Manufacturing and Processes.</p>		