Course Title	**Manufacturing Processes**				
Course Code	**MME 348**				
Course Type	Compulsory				
Level	Undergraduate				
Year / Semester	3rd Year / 6th semester				
Teacher's Name	Claus Rebholz				
ECTS	6	Lectures / week	3+1 hours	Laboratories / week	1 hour
Course Purpose and Objectives	Focus on manufacturing processes to understand the relation between properties, structure and processing and select the right material for the job.				
Learning Outcomes	• Familiarity with manufacturing processes for engineering materials • Knowledge of plastic deformation and structure and manufacturing properties of metals • Understanding the relationship between properties, structure and processing • Knowledge of surface structure, treatment and processes • Understanding manufacturing processes such as casting and forging • Recognition of new design opportunities offered by materials selection • Familiarity with methods above in the laboratory and practice				
Prerequisites	MME 347	Required	None		
Course Content	This course will take a broad look at the various manufacturing processes for available engineering materials. The lecture material will be reinforced by laboratory sessions and problem sets. Topics covered include: Introduction to manufacturing processes for engineering materials; Review of fundamental mechanics of plastic deformation; Structure and manufacturing properties of metals; Surface structure, treatments and tribology; Metal-casting and heat treatment processes; Bulk deformation processes: turning, milling, drilling, etc.; Material removal processes: abrasive, chemical, electrical and high-energy beams; Joining processes: soldering, brazing, welding, etc.; Micro- and nanofabrication. **Laboratory Exercises** • CAD-CAM project • Additive manufacturing • Electro-discharge machining • Thermoforming • Welding (fusion and solid state)				

Teaching Methodology	• Lectures • Tutorials, laboratory demos and projects in machining shop • Educational field trips to local industries • Communicative, Collaborative • During the first week of the semester, the course syllabus is given to students, which includes information on the course content, expected learning outcomes, assessment and office hours.
Bibliography	• Kalpakjian, S. and S. Schmid, *Manufacturing Processes for Engineering Materials* (6th Edition). Pearson. • Groover, M.P., *Fundamentals of Modern Manufacturing: Materials, Processes and Systems* (6th Edition). Wiley.
Assessment	• Homework & Labs 30% • Midterm Exam 30% • Final Exam 40%
Language	Greek