

Course Title	Advanced Metal Working Processes				
Course Code	MME 443				
Course Type	Elective				
Level	Undergraduate				
Year / Semester	4 th year / 7 th or 8 th Semester				
Teacher's Name	Denis Politis				
ECTS	6	Lectures / week	3+1 hours	Laboratories / week	8 hours total
Course Purpose and Objectives	Provides a detailed overview of forging and sheet forming processes to produce high performance components.				
Learning Outcomes	<ul style="list-style-type: none"> • Scientific understanding of cold, and hot forging processes • Understanding of analytical methods for analyzing forging operations • Recognition of processes to maximize performance of forged components. • Scientific understanding of sheet metal forming processes • Understanding of analytical methods for analyzing sheet forming operations • Recognition of processes to maximize performance of sheet formed components • Familiarity with these methods in the laboratory and practice 				
Prerequisites	MME 347, MME 348	Required	None		
Course Content	<p>Manufacturing technologies are used to produce components of various shapes and sizes. This course focuses on manufacturing technologies commonly used by industry, with the focus on forging and sheet metal forming. The topics covered in the course include: scientific understanding of cold, warm and hot forging and cold and warm sheet metal forming processes, component and tooling design principles to maximize mechanical performance of produced components, modelling theory and analytical analysis of material behavior under cold, warm and hot operations, innovations in metal forming to maximize component performance.</p> <p>Laboratory Exercises</p> <ul style="list-style-type: none"> • Cold and hot forging • Material strengthening • Sheet blanking, bending and forming 				
Teaching Methodology	<ul style="list-style-type: none"> • Lectures • Tutorials • Laboratory projects and demonstrations • 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	<ul style="list-style-type: none"> • Altan, T., G. Ngaile and G. Shen, <i>Cold and Hot Forging: Fundamentals and Applications</i>. • Altan, T. and E. Tekkaya. <i>Sheet Metal Forming Fundamentals</i>. ASM International.
Assessment	<ul style="list-style-type: none"> • Homework & Labs 30% • Midterm Exam 30% • Final Exam 40%
Language	Greek