Course Title	**Chemistry for Engineers**				
Course Code	**MME 156**				
Course Type	Compulsory				
Level	Undergraduate				
Year / Semester	1st year / 2nd Semester				
Teacher's Name	Theodora Krasia-Christoforou				
ECTS	5	Lectures / week	3+1 hours	Laboratories / week	0
Course Purpose and Objectives	In today's modern society, Chemistry is greatly involved in all engineering fields. The aim of MME156 is the understanding of basic chemistry concepts by the undergraduate students and the acquiring of knowledge that is directly interweaved with the Mechanical and Manufacturing Engineering as well as Materials Science and Engineering fields.				
Learning Outcomes	• Understand and describe the different types of chemical bonds. • Balance chemical equations and solve stoichiometric problems. • Understand redox processes and solve related problems. • Understand and describe the basics on Chemical Thermodynamics and solve thermochemistry-related problems. • Understand the meaning of equilibrium in physical and chemical processes, the influencing parameters and solve related problems of a chemical reaction by altering the aforementioned parameters. • Understand the meaning of the strength of acids and bases, pH and pOH and solve related problems. • Acquire general knowledge and understanding on polymers. • Acquire general knowledge and understanding on the importance of nanotechnology and nanomanufacturing in the generation of advanced nanomaterials for use in several applications.				
Prerequisites	None	Required	None		
Course Content	The aim of the course is the understanding of basic chemistry concepts by the undergraduate students and the acquiring of knowledge that is directly interweaved with the Mechanical and Manufacturing Engineering as well as Materials Science and Engineering fields. Atomic structure and chemical bonds. Chemical equations: Stoichiometry, moles, concentration, molarity, density etc. Chemical reactions between acids and bases; chemical reactions involving gases; combustion reactions. Redox reactions. Examples: electrolysis, corrosion, fuel cells, etc. Chemical Thermodynamics and Thermochemistry. Equilibrium in physical processes, characteristics of a dynamic equilibrium, equilibrium in chemical reactions, equilibrium constant and equilibrium Law, parameters influencing the chemical equilibrium. Strength of acids and bases: The meaning of pH. Special topics: Polymers and Advanced materials and nanotechnology.				

Teaching Methodology	• PowerPoint presentations • Tutorials (on a weekly basis) • 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	• Graham, H. and J. Holman, *Chemistry in Context*, 5th Edition Nelson Thornes Ltd. 2000. • Callister, W.D. JR., *Materials Science and Engineering. An introduction*. • MME 156 course handouts (http://www.eng.ucy.ac.cy/krasia/).
Assessment	• Exercise sets (x3) 10% • Midterm examination 40% • Final examination 50%
Language	Greek