Course unit title:	Freshman Automotive Engineering		
Course unit code:	AUTO100		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	1		
Semester when the unit is delivered:	1 (Fall)		
Number of ECTS credits allocated :	4		
Name of lecturer(s):	Dr. Stamatis Rossides, Dr. Marios Fyrillas, Mr. C. Athanassiou		
Learning outcomes of the course unit:	1. Appreciate the major sectors of mechanical engineering 2. Understand the basic principles of various fields of mechanical engineering. 3. Perform simple calculations to various fields of mechanical engineering. 4. Understand basic physical concepts. 5. Appreciate the types of materials and their mechanical properties. 6. Appreciate the use of computer on every day activities.		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	• Introduction to Mechanical Engineering: The Sectors - Production Engineering (Materials Technology, Manufacturing Processes, Production Systems, CAD/CAM/CAE, etc) - Structural Engineering (Machine Elements, Engineering Design, Controls, Dynamics of Machines, Robotics, etc) - Energy (Thermodynamics, Fluids, Heat and Mass Transfer, Gas Turbines, etc) • Basic Physical Concepts - Codes and standards - Units, rules for use of SI Units, preferred Units - Force and its units - Forces in equilibrium, resultant of a system of forces - Moment of a force - Conditions for static equilibrium - Center of mass, centroids • Introduction to Materials - Types of materials - Material behavior - Materials design and selection - Metals and alloys • Mechanical Properties of Materials - Introduction to mechanical testing and properties - Stress, strain and elasticity - The tension and compression test - The stress-strain diagram • Thermodynamics - Heat, work, and system - The state of a working fluid		

	- Reversibility - Reversible work • Fluids - Pressure - Manometers - Continuity equation - Bernoulli's equation • Introduction to Computer Technology - Description of the main components of a computer. - Familiarisation with the Windows operating system. - Introduction to MS-Office (MS-Word, MS-Excel, Powerpoint) - Use of the Internet and e-mail
Recommended and/or required reading:	
Textbooks:	• Manufacturing Processes for Engineering Materials, by Serope Kalpakjian, Steven R. Schmid, Prentice Hall, 2003. • Physics for Scientists and Engineers with Modern Physics by Paymond A. Serway, Robert J. Beichner, International Thomson Publishing, 2000 • Science and Engineering of Materials by Donald R. Askeland, Wadsworth Pub Co, 4th edition, 2002 • Applied Thermodynamics for Engineering Technologists by T.D. Eastop and A. McConkey, Longman, 1997 • Fundamentals of Fluid Mechanics by Donald F. Young, Theodore H. Okiishi, Bruce Roy Munson: John Wiley & Sons, 4th edition, 2002 • Ramon Matatoledo, Introduction to Computer Science, McGraw-Hill, 1999.
References:	•
Planned learning activities and teaching methods:	The taught part of course is delivered to the students by means of lectures, conducted with the help of computer presentations. Lecture notes and presentations are available through the web for students to use in combination with the textbooks. Computer laboratories are used in this subject and assignments are performed to evaluate the students understanding of the subject matter.
Assessment methods and criteria:	• Tests: 66% • Assignment: 34%
Language of instruction:	English
Work placement(s):	No