

Course Information Package

PART A: Student Workload Analysis



| PLANNING FORM FOR AN EDUCATIONAL MODULE

Programme of Studies:	<i>BSc in Mechanical Engineering</i>	
Name of the module:	<i>AMEM 100 – Freshman Mechanical Engineering</i>	
Target group:	<i>Mechanical Engineering students (Core)</i>	
Level of the unit:	<i>BSc – 1st Semester</i>	<i>Introductory</i>
Entrance requirements:	<i>NONE</i>	
Number of ECTS credits:	<i>4 (Average student working time: 100 hours)</i>	
Lecturer:	<i>Ass. Professor Stamatis Rossides</i>	
Office:	<i>Library Building, Office 113</i>	
Email	<i>eng.rs@fit.ac.cy</i>	
Webpage:	<i>http://staff.fit.ac.cy/eng.rs</i>	
Office hours:	<i>See above webpage for details</i>	

Competences to be developed:

1	Have an appreciation of the major sectors of mechanical engineering
2	Understand the basic principles of various fields of mechanical engineering.
3	Ability to perform simple calculations to various fields of mechanical engineering.

Estimated student's work time distribution in hours:

Contact hours		Student's private time	
Lecture	32	Private Study	27
Mid-Term/Quizzes	3	Preparation of assignments	22
Computer Lab Work	7	Preparation of lab reports	-
Lab Assessment	-	Test Preparation	9
Final Exam	-	Final Exam Preparation	-
Total:	42	Total:	58

Learning outcomes

Students should be able to:

Introduction to Mechanical Engineering: The Sectors

- Production Engineering
- Structural Engineering
- Thermal Engineering

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 behaviour
- 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

PART B: Complementary Material

Course Content (Syllabus):

- 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
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Teaching Methodology:

- A description is given at the beginning of the course in order for the students to get enough information on the making breakdown, assignment instructions, and tutorial sessions as well as the recommended bibliography for their use during the course.
- Student evaluation is based on assignments, mini projects and tests.

- Lectures and lecture-based problem classes for tests preparations.
- Computer laboratories are used in this subject and assignments are performed to evaluate the students understanding of the subject matter.

Assessment Weights				Total
	Quizzes	3	11%	33%
	Assignments	4	1x34%+3x11%	67%
	Computer Lab		-	-
Final Exam		NONE		

Note: The assessment weights for the final exam the coursework are decided by the Department before the beginning of the semester. The details on the number of tests/homework assignments projects etc, as well as their assessment weights are decided by the academic staff responsible for the course.

Bibliography:

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:

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