



FREDERICK UNIVERSITY CYPRUS

Department of Mechanical Engineering

Subject:	Mechanical Engineering Design – AMEM 404
Academic Year:	2007 – 08 (Spring Semester)
Lecturer:	Dr. Antonios Lontos
Number of periods per week:	3
Number of total weeks:	14

Course Outline:

- The position of the design process within the company. The necessity for systematic design. Design methods. Systems theory.
- Fundamental design. Assembly and component. Functional interrelations. Systematic approach. Working methodology.
- Process planning and designing. Problem solving process.
- Methods for finding and evaluating solutions. Methods for combining solutions. Selection and evaluating methods.
- Product planning and clarifying the task. General approach. Product definition. Design specification.
- Conceptual design. Abstracting to identify the essential problems. Establishing function structures. Developing working structures. Examples of conceptual design.
- Embodiment design. Basic rules and principles. Guidelines for embodiment design. Evaluation. Examples. Detail design.
- Design for quality and minimum cost. Fault tree analysis. Failure mode and effect analysis. Cost factors. Estimating costs. Value analysis. Rules for minimum costs.

Assessment:

Final exam	60%
Coursework	40%

The passing mark is 50%. To pass the course you must get a 35% grade in both final exams and coursework.

Coursework:

Assignment 1:

Grading system:

Assignment	100%
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Textbooks

- Engineering Design: A systematic approach, Pahl, Beitz, 2nd Edition, 1999.

References

- Product Design, Techniques in Reverse Engineering and New Product Development, Kevin Otto, Kristin Wood, 2001.
- Engineering Design Methods: Strategies for Product Design, Nigel C., 1995.
- Engineering Design, by G. Dieter.
- Mechanical Design, An Integrated Approach, Ansel C. Ugural, 2004.
- Mechanical Engineering Design, 5th ed., by J. Shigley and C. Mischke
- Introduction to Engineering Design, by N.L. Svensson
- CDT/Projects and Approaches by D. Bardex and R. Kimbell