



FREDERICK UNIVERSITY CYPRUS

DEPARTMENT OF MECHANICAL ENGINEERING

Subject:	Machines Elements II – AMEM 317
Academic Year:	–
Lecturer:	Dr. Antonios Lontos
Number of periods per week:	3+1(Laboratory Work)
Number of total weeks:	14

Course Outline:

- Gearing – General, Introduction to gears, Types of gears, Tooth system, Contact ratio, Force analysis, Applications of gear design and power transmission in mechanical drives.
- Spur and Helical Gears.
- Bevel and Worm Gears, Stresses and Strength.
- Mechanical Spring, Stresses in helical springs, Deflection of helical springs, Extension and Compression springs, Springs material, Fatigue loading, Design of springs, Miscellaneous springs.
- Clutches and Brakes, Brake analysis, Band-type clutches and brakes, Energy consideration, Temperature rise, Friction materials.
- Competition of the design of a power transmission, Flat belts, Roller chain, Wire rope, Flexible shaft.

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: Gears - Bevel and Worm Gears (March)**
Assignment 2: Springs (April)**

** The dates of the tests and assignments are likely to change slightly.

Grading system:

Assignments	100%
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Textbooks:

- Fundamentals of Machine Elements, B. J. Hamrock, B. Jacobson, S. R. Schmid, McGraw-Hill
- Mechanical Engineering Design, Ch. R. Mischke, J. Edward Shigley, McGraw-Hill

References:

- Mechanical Design, An Integrated Approach, Ansel C. Ugural, McGraw Hill, 2004.
- Design of Machine Elements and Machines, Jack A. Collins, George H. Staab, Henry R. Busby, John Wiley & Sons, 2002
- Mechanisms and mechanical devices by Neil Clater, Nichocals P. Chironis, Third Edition 2001
- Fundamental of Machines Components Design, Robert C. Juvinall, Kurt M. Marshek, Third Edition, 2000
- Machine Design: An Integrated Approach by Robert L. Norton, Robert L Norton, Prentice Hall, 2nd edition, 2000
- Machine Elements in Mechanical Design by Robert L. Mott, Prentice Hall, 3rd edition, 1998