



# FREDERICK UNIVERSITY CYPRUS

## DEPARTMENT OF MECHANICAL ENGINEERING

<b>Subject:</b>	Machine Elements I – AMEM 316
<b>Academic Year:</b>	-
<b>Lecturer:</b>	Dr. Antonios Lontos
<b>Number of periods per week:</b>	3+1*
<b>Number of total weeks:</b>	14

### **Course Outline:**

- General concepts on machine design such as stress and strength, stress concentration, Static strength, Plastic deformation.
- Fatigue, Theories of failure, Failure prevention, Static and dynamic strength of machine elements.
- Shafts, Shaft material and critical speeds, Keys and Couplings.
- Bearings, Bearing types, Lubrication and seals, Bearing load and life, Selection of ball and cylindrical roller bearing.
- Screws, Fasteners and Connections.
- Welded and Bonded Joints, Welding symbols, Stresses in welding, Static and fatigue loading, Specification set.
- Cams and Flywheels.

### **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: Shafts (November)  
Assignment 2: Bearings (December)

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

### **Grading system:**

Assignments	100%
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### **Textbooks:**

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

### **References:**

- Design of Machine Elements and Machines by Jack A. Collins, George H. Staab, Henry R. Busby, John Wiley & Sons, 2002
- Machine Design: An Integrated Approach by Robert L. Norton, Robert L Norton, Prentice Hall, 2<sup>nd</sup> edition, 2000
- Machine Elements in Mechanical Design by Robert L. Mott, Prentice Hall, 3<sup>rd</sup> edition, 1998

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