FREDERICK UNIVERSITY CYPRUS
DEPARTMENT OF MECHANICAL ENGINEERING

Subject: Machine Elements and Analysis I – AUTO 308
Academic Year: -
Lecturer: Dr. Antonios Lontos
Number of periods per week: 3+1*
Number of total weeks: 14

Course Outline:

- General concepts on machine design and vehicle mechanics, Stress and strength, stress concentration, Static strength, Plastic deformation.
- Fatigue, Theories of failure, Failure prevention, Static and dynamic strength of vehicle machine elements.
- Engineering shafts, Crankshaft, Shaft material and critical speeds, Vehicle axles, Keys and Couplings.
- Vehicle Bearings, Bearing types and applications, Lubrication and seals, Bearing load and life, Selection of ball and cylindrical roller bearing for vehicles.
- Calculation and applications of bolted connections, Bolt strength, Screws and Fasteners, Fasteners stiffness. Vehicle applications.
- Calculation of welded and bonded Joints, Welding symbols, Stresses in welding, Static and fatigue loading, Specification set.
- Vehicle cams and flywheels.

Assessment:

Final exam	60%
Coursework	40%

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%

Textbooks:

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

References:

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

Website: http://staff.fit.ac.cy/eng.la
E-mail: eng.la@fit.ac.cy