Alexandria University  
Faculty of Engineering  
Dept. of Mech. Eng.  

ME 143 Mechanics of Machinery-1  
Course Outline: February 2011

**Course Lecturer:** Dr. Aly Mousaad Aly  
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Course website: [http://engr.uconn.edu/~aly/Courses/ME143](http://engr.uconn.edu/~aly/Courses/ME143)

**Semester:** Spring 2011

**Prerequisite:** Passing the preparatory year at the Faculty of Engineering.

**Course Description:** This course introduces the student to the analysis of machines commonly used in mechanical engineering. The course deals with evaluation of velocity, acceleration, forces and torque associated with the performance of the machines in different mechanical systems. Gear trains are also investigated. Practical projects carried out by the students on various mechanisms and machines reinforce theory.

**Course Objectives:**

1. Develop the student's ability to analyze and design planar machines.  
2. Analyze the forces, velocities, and accelerations in machines.  
3. Analyze motion of elements in machines.  
4. Understand various gear trains.

**Course Objectives:**

After completing the course, students will be able to:

1. Determine the number of degrees of freedom in a mechanism  
2. Perform position, velocity, acceleration, and force analysis of simple linkages  
3. Analyze and synthesize simple gear trains to achieve specified speed ratios  
3. Ability to work in a team and present their work.

**Text Books:**


**References:**

- Theory of Machines, R.S. Khurmi, J.K.Gupta, Eurasia Publishing
Grading:

- Final Project (20 Marks)
- Oral Exam (10 Marks)
- Midterm Exam (30 Marks)
- Final Examination (90 Marks)