



Dynamics of Machine (28512)

Course Objectives

To apply the fundamental knowledge of dynamics to mechanisms commonly used in engineering practice.

Text Book

Mechanics of Machines, W. L. Cleghorn, Oxford University Press 2005 (an electronic copy is available on CW)

Homepage

Check CW

Lecture notes, assignments, projects, etc. are posted weekly (Mondays afternoon) on CW

Exams – Tentative Mark Distribution

Assignments (8 sets):	20%
Simulation Projects	10%
Midterm Exam:	30%
Final Exam:	40%

- For both midterm and final exams, one page of formula sheet is allowed. Textbook, lecture notes and/or worked examples are prohibited.

Class Discipline

- Attendance of the students will be checked at the beginning of the lectures (about 7:35). According to the university rules, if one misses 4/17 of the lectures (more than seven lectures in total) he/she must withdraw the course. This will be strictly enforced.
- During the semester, you may receive critical information about the course materials through your email account that is registered with the education office. Make sure you check your emails regularly.

Tentative Lecture Schedule

Week	Material to be covered (tentative)
1	Introduction, background, history, fundamental concepts
2	Chapter 2, 2.1-2.4: Velocity and acceleration analysis
3	Chapter 2, 2.5-2.8: Acceleration, Limit position, Time ratio, Transmission angle, IC
4	Chapter 2, 2.8-2.11: IC, Kinetics, Systems of units
5	Chapter 3: Graphical kinematics of planar mechanisms
6	Chapter 4: Analytical kinematics of planar mechanisms
7	Chapters 4, 5: Gears
8	Chapter 5: Gears (Midterm)
9	Chapter 6: Gear trains
10	Chapters 6, 10: Gear trains, Flywheels
11	Chapter 10: Flywheels
12	Chapter 7: Cam design
13	Chapter 9: Force analysis and balancing
14	Chapter 9: Force analysis and balancing
15	Review

Assignments

Assignment set	Due date
1	Mehr 16
2	Mehr 23
3	Aban 7
4	Aban 14
5	Azar 12
6	Azar 19
7	Azar 26
8	Day 10

- The assignments and solutions will be posted on CW
- Assignments and projects are to be done individually and handed in to me in class or slipped through under my room door on the due date. For each day of delay, 5% of the mark will be deducted. Submission is allowed until 10 days after the due date.

Simulation projects

A tutorial on Simmechanics/MATLAB will be arranged. Taking part is highly recommended. One or two small projects will be assigned throughout the term. Details will be provided later.