

MECH 314

Dynamics of Mechanisms

March 22, 2011

Winter Term, Academic Year: 2010-2011

1 OBJECTIVE OF THE COURSE

1. Introduction and Basic Concepts
2. Kinematics: Position and Displacement Analysis
3. Kinematics: Velocity Analysis
4. Static Force Analysis
5. Dynamic Force Analysis
6. Additional Topics and Application, e.g., Gear Trains

2 INSTRUCTOR

Paul Zsombor-Murray
Room: 3465 Durocher, Rm. 202
E-mail: <paulATcim.mcgill.ca>
Office hours: Tuesday and Thursday 10H-11H

3 TEACHING ASSISTANT

Mohammad Jalali Mashayekhi
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Room: TBA
Office hours: Monday 11H-12H

4 LECTURES

Tuesday and Thursday: 16H00-17H30
Room: ENGM C 13

5 TUTORIAL

Friday: 16H00-17H30
Room: TBA but I suspect Lyman Duff Medical Building amphitheater near entrance on east side of University Ave., above des Pins

6 COURSE CHARACTERISTICS

- MECH 220, Mechanics II or equivalent is prerequisite to MECH 314.
- MECH 314 is based on foundation laid in Mechanics II.
- My website <<http://www.cim.mcgill.ca/~paul>> will be used for distribution of course related material.
- Problem solving methods include graphical construction as well as analytical techniques.
- Success demands individual, as opposed to group, effort.
- Because this is a required (core) course for Mechanicals, class size is inevitably large; 50-100 students.

7 TEXTBOOK

J.J. Uicker, Jr., G.R. Pennock and J.E. Shigley, *Theory of Machines and Mechanisms*, Oxford University Press, 3rd (2003) or 4th (2011) editions. The latter is available in the bookstore. This is an expensive book but consider that mechanical engineering is about machines and making new ones. Since essential principles don't change, with luck this will serve you as a reference source for years to come.

8 OTHER POSSIBLE REFERENCES

W.L. Cleghorn, *Mechanics of Machines*, Oxford University Press, 2005.

A.G. Erdman, G.N. Sandor and S. Kota, *Mechanism Design: Analysis and Synthesis*, Prentice Hall, 4th edition, 2001.

9 PROBLEM SETS

- There will be six (6) problem sets. They will be posted on my website as noted as the third item in section 6.
- Submission is not mandatory but students are encouraged to submit detailed solutions to obtain feedback concerning correctness of their approach and results.
- Solutions will be available, some time after assignment of problem set. These solutions will be posted on my website as noted as the third item in section 6.

10 MID-TERM TESTS AND FINAL EXAM

Tests and exam are "open-book". Any aids, including computers but excluding intercommunication among students, are allowed during mid-terms. In the final exam you may bring anything that invigilators allow you to take into the exam room. Mid-terms are scheduled for February 15, 16H00 until 17H30 and March 31, 16H00 until 17H30. The first is a Tuesday, the second a Thursday. A modified final exam schedule will be posted. MECH 314 is currently scheduled for Monday, 11-04-18, 14H00-17H00.

11 TUTORIAL

- Held on Fridays 16H00-17H30, most probably in Lyman Duff Auditorium 1. This building is on the east side of University Ave. north of Ave. des Pins/Pine Ave. Tutorials will address . . .
- Review of key concepts and methods and

- Solution of additional problems as well as provide a course topic related discussion forum.

12 RÔLE OF THE TEACHING ASSISTANT

- Conducting tutorials,
- Grading of assignments submitted, mid-terms and assistance in grading final exam. A standard scheme will be applied.
- Availability during office hours to answer questions and provide assistance in getting students started if they encounter difficulty with problems.

13 GRADING SCHEME

Option	Final	Mid-term tests
1	60%	20%+20%
2	80%	20% (better grade of the two)
3	100%	0%

The scheme that affords each student the best grade will be applied.

14 LETTER GRADE

A=85-100	A-=80-84	B+=75-79	B=70-74
B-=65-69	C+=60-64	C=55-59	D=50-54

15 ACADEMIC INTEGRITY

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offenses under the Code of Student Conduct and Disciplinary Procedures. See <<http://www.mcgill.ca/integrity>> for more information.