Kinematics of Machinery (ME 231-104)
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Office: 333D MEC
Office Hours: Mon 3:30-5:30 and Tues 3:30-5:30, no appointment for in-person visit (appointment needed for Zoom visit)

Course Summary
ME 231 is an introductory course in the design and analysis of planar and spatial mechanical systems.

Perquisites
CIS 101, Mech 234 and access to MATLAB® and Simscape Multibody®

Course Materials
**Textbook:** K. Russell, Q. Shen and R. S. Sodhi, "Kinematics and Dynamics of Mechanical Systems: Implementation in MATLAB® and SimMechanics® Third Edition," CRC Press, Boca Raton, 2019. ISBN 9781032328317.

| DATES | TOPICS AND CHAPTERS | HW PROBLEMS |
|---|---|---|
| 01/27 | Introduction (Ch 1), Complex Vectors (Ch 2) | CH2.pdf |
| 02/03 | Kinematics Fundamentals (Ch 3) | CH3.pdf |
| 02/10 | 4-bar and Slider-crank Kinematic Analysis (Ch 4) | CH4A.pdf |
| 02/17 | 5-bar and Multi-loop Kinematic Analysis (Ch 4) | CH4B.pdf |
| **02/24** | **EXAM 1 (from 6:00 to 8:00 pm)** | |
| 03/03 | Dimensional Synthesis (Ch 5) | CH5.pdf |
| 03/10 | Planar Mechanism Static Force Analysis (Ch 6) | CH6.pdf |
| 03/24 | Planar Mechanism Dynamic Force Analysis (Ch 7) | CH7.pdf |
| 03/31 | Gear Design and Kinematic Analysis (Ch 8) | CH8A.pdf |
| **04/07** | **EXAM 2 (from 6:00 to 8:00 pm)** | |
| 04/14 | Gear Design and Kinematic Analysis (Ch 8) | CH8B.pdf |
| 04/21 | Cam Design and Kinematic Analysis (Ch 9) | CH9.pdf |
| 04/28 | Kinematic Analysis of Spatial Mech. (Ch 10 and Ch 11) | CH10.pdf |
| 05/05 | Introduction to Robotic Systems (Ch 11) | CH11.pdf |
| **TBD** | **EXAM 1 (from 6:00 to 8:00 pm)** | |

Grading
3 Examinations (25% each), Project (optional) 25%, Homework 25%
A≥90, 90>B+≥85, 85>B≥80, 80>C+≥75, 75>C+≥70, 70>D≥60, 60>F

Policies
Homework submitted after due date will be penalized (**1/2 credit if one week late and no credit beyond one week**).
Any violation of the NJIT Honor Code (e.g., plagiarism and cheating on exams and assignments) will be penalized.
Make-up exams must be scheduled during office hours and within 1 week of the original exam date.

Link for Downloads http://www.softalink.com/kruss/me231/*filename.pdf*
/*SYLLABUS.pdf*

The following MATLAB toolboxes are needed for course assignments:

1. MATLAB
2. Simulink
3. Optimization Toolbox
4. Simscape
5. Simscape Multibody
6. Symbolic Math Toolbox

The following naming approach should be used for homework PDF files using CH2.pdf as an example:

CH2###.pdf (where ### are the last 3 digits of your NJIT SID number)

For example, if the student's NJIT SID last 3 digits are 123, the homework PDF file would be named CH2123.pdf (no spaces).