

Syllabus for MEEG 301 – Machine Design-Kinematics and Kinetics

Lecture:

MWF 11:15–12:05, KRB204 204

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Prerequisites Information: MEEG 211 is a prerequisite for this course. This course is a prerequisite for MEEG 304.

Text: *Design of Machinery*, R. Norton, Fourth Edition, McGraw-Hill.

Material to be Covered: Kinematics and dynamics of mechanisms, primarily fourbar mechanisms. Cam design and gear trains also covered. Emphasis given on analytical linkage synthesis.

Evaluation methods: Homework will be assigned on a weekly schedule. They will be due on a specific day when we meet and are supposed to be submitted at *before* the lecture begins. Late homework is accepted at the expense of a 20% penalty for each additional day. Homework problems are selected from the textbook for the most part, with the intention to put in practice the material presented during the lecture. There will only be a single (final) exam at the time and date specified by the University. No modifications on the

time or date can be made. On exceptional circumstances, there might be a possibility for early examination. The design project is a mechanism design group assignment that may change from year to year, and is a continuous process throughout the semester. Students move through different stages of the project according to the pace with which the theoretical material is covered in class. There are three phases with associated deliverables: proposal, preliminary analysis, and final report & presentation. The proposal involves background research, specification determination, proposed solution and justification. The preliminary analysis includes the synthesis, the kinematic and dynamic analysis of the mechanism and the preparation of a technical report summarizing the work. The last stage finalizes presents the outcome in a 10 minute class presentation. Extra credit is given for a functional prototype. The deadlines for each deliverables are not fixed but are rather set during the semester in a reasonable progression based on the pace of the course.

Grade distribution:

Homework	20%	A	93–100	A-	90–92	B+	87–89	B	84–86
Project	40%	B-	80–83	C+	77-79	C	74–76	C-	70–73
Final Exam	40%	D+	67–69	D	63–66	D-	60–62	F	0–59
Total	100%								

Working Together: Collaboration is accepted on homework, but solutions should be given based on individual justification and reasoning, which needs to be clear on your paper. Exam collaboration is expressly forbidden. For the design project, it is expected that the work will be divided among the group members. The distribution of work will be reported on the final report.

Absences: You are expected to attend every class. It is not acceptable to give priority to assignment completion over class attendance. The 20% penalty on assignments thus applies also to the case where you choose to miss class in order to finish your assignment.

Plagiarism: The University’s *minimum penalty* for cheating or plagiarism is *a failure in the course*. Extra emphasis will be placed on thorough literature/background review during the design project’s initial phases and *all* related work found is expected to be cited properly (instructions on doing so will be given).