

# ME140 – Mechanical Vibrations and Controls

## Class Schedule, Spring 2019

Instructor: M. E. Brokowski, PhD

The following schedule is subject to change throughout the semester with updates announced in class. Due dates posted on other materials (such as the homework assignments) supersede those here.

Lecture #	Date	Day	Topics	Assignment Due/Lab
1	Jan 23	Weds	Intro, math, kinematics	
2	Jan 28	Mon	degrees of freedom, kinetics	
3	Jan 30	Weds	O.D.E. solutions	HW 1
4	Feb 04	Mon	parameter estimation	Lab #1
5	Feb 06	Weds	free and forced oscillation	HW 2
6	Feb 11	Mon		
7	Feb 13	Weds		HW 3
8	Feb 18	Mon		President's Day
9	Feb 20	Weds		HW 4
	Feb 25	Mon		Lab #2
10	Feb 27	Weds	Review	HW 5
11	Mar 04	Mon		Exam 1
12	Mar 06	Weds	multiple degrees of freedom	
13	Mar 11	Mon	2DOF oscillation	
14	Mar 13	Weds	Resonance	HW 6
15	Mar 18	Mon	Normal modes	Lab #3
16	Mar 20	Weds	Mode shapes	HW 7
	Mar 25, 27		Infinite DOF, cantilever	Spring Recess
17	Apr 01	Mon	Review	HW 8
18	Apr 03	Weds		
19	Apr 08	Mon		Exam 2 Lab #4
20	Apr 10	Weds	Feedback control	
21	Apr 15	Mon	Stability	
22	Apr 17	Weds	Block diagrams	HW 9
23	Apr 22	Mon	Proportional/Integral/Derivative	
24	Apr 24	Weds	Root locus, Bode	HW 10
25	Apr 29	Mon	state space	Lab #5
26	May 01	Weds		HW 11
27	May 06	Mon		
28	May 08	Weds	Review	HW 12
29	May 13	Mon		Exam 3 (during finals week)

Lecture: (CRN 10235) Monday and Wednesday, 8:00 – 9:15 AM, room SSB 170

Labs: Located in SCIENG 158

CRN	Course #	Day	Time		
10236	ME-140-02L	M	1:00-3:50pm	SCIENG 158	Pareh, A
10237	ME-140-03L	R	1:00-3:50pm	SCIENG 158	Pareh, A
10941	ME-140-04L	F	1:00-3:50pm	SCIENG 158	Homayouni, T
14019	ME-140-05L	R	9:30-12:20pm	SCIENG 158	Homayouni, T

### Office Hours:

Dr. Brokowski (mbrokowski@ucmerced.edu): AOA room 146, Mon/Weds 9:30 - 10:30 AM or by appointment

TA – Mr. Taymaz Homayouni (thomayouni@ucmerced.edu): SSM room 203 Mondays 11:00 AM - 1:00 PM

TA – Ms. Akram Gholami Pareh (agholamipareh@ucmerced.edu): AOA room 142 Tuesdays 1:30 - 3:30 PM

Textbooks: *Mechanical Vibrations* by Singiresu S. Rao and *Feedback Control of Dynamic Systems* by Gene F. Franklin, J. David Powell, and Abbas Emami-Naeini. See the announcement on CatCourses for more information on the texts.

### Assessment

#### *Grading Weights:*

- Homework assignments: 10%
- Lab Work & Reports: 30%
- Midterm Exam 1: 20%
- Midterm Exam 2: 20%
- Midterm Exam 3: 20% (may be during finals week)

No cumulative final exam, but later material builds on earlier material.

There is no extra credit in ME 140. All grades from assignments, exams, etc. count. None are dropped.

#### *Missing Assignment / Exceptions / Late Assignments / re-grading / etc.*

- Exceptions only for *prior* arrangement or *documented* medical emergency. These must be confirmed via email. The exam dates are pretty firm, so check ahead of time and make arrangements now if you will be unable to take an exam on the dates shown.
- Homeworks are turned in *right at the beginning* of class on the day they are due. E.g., if class starts at 8:00, then 8:01 is late and may be marked late for reduced credit. No credit is given for homework turned in after class. Lab reports are due 2 weeks after the lab is performed. There is a 20% penalty for late labs and an additional 10% per day late after.
- Unexcused missed assignments, quizzes, and exams are graded zero. (They may still show up as blank on CatCourses and not shown in course averages. The zeroes will still be filled in at the end of term.)
- Grading mistakes can happen - *remedy them right away!* If an assignment, quiz, or exam grade is misgraded or the grade is posted incorrectly to CatCourses (or not posted when it has been returned), please bring the item in question to the instructor's attention after class or during office hours *and* confirm via email within one week of the grade posting or item's return. DO NOT wait until near the end of term to bring such issues up. Note that any "blank" grades on CatCourses for graded work represent zeroes that haven't been posted yet, unless an exception is on file.