

Fall 2015

ENEE 3533

V. P. Jilkov
University of New Orleans

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Syllabus

Instructor: Dr. V. P. Jilkov, Riley Parker Endowed Professor
Office EN844: Tue & Thu 3:15pm – 5:00pm, Wed 3:00pm – 5:00pm, or by appointment
Phone: 280-6179, Email: vjilkov@uno.edu

Classes: Tuesday & Thursday 5:00pm – 6:15pm, EN 317

Textbook: R. C. Dorf and R. H. Bishop, *Modern Control Systems*, 12th Edition, Pearson 2011
(ISBN-13: 9780136024583), <http://www.pearsonhighered.com/dorf/>

Software: MATLAB & Simulink, Student Edition, The Mathworks

Prerequisites: ENEE 3530
Linear algebra, differential equations, Laplace transform, state variables, basic MATLAB

UNO Catalog Description:

Design of control systems using classical frequency response and Laplace transforms techniques; analysis and design of servo-systems using Nyquist, Bode, and root-locus diagrams; design criteria, system stability, frequency, and time response. State variable feedback.

Learning Outcomes: After successfully completing this course, students will be able to:

- Model linear systems through the use of transfer functions.
- Analyze the performance of feedback control systems with time domain specifications such as percent overshoot, settling time and rise time.
- Determine the stability of linear systems.
- Design controllers for linear feedback systems using frequency response and pole-placement techniques.

Schedule:	Topic	Weeks
	Introduction to Control Systems (Ch. 1)	0.5
	Mathematical Models of Systems (Ch. 2)	1.5
	State Variable Models (Ch. 3)	1
	Feedback Control System Characteristics (Ch. 4)	1
	Performance of Feedback Control Systems (Ch. 5)	1.5
	Midterm Exam 1	0.5
	Stability of Linear Feedback Systems (Ch. 6)	1
	Root Locus Method (Ch. 7)	1.5
	Frequency Response Methods. Nyquist Criterion (Ch. 8 & Ch. 9)	2.0
	Midterm Exam 2	0.5
	Design of Feedback Control Systems (Ch. 10)	2
	Design of State Variable Feedback (Ch. 11)	1
	Final Project Presentations	0.5

Assignments & Grading:

- Homework assignments (10%)
- Class participation (5%)
- Two in-class exams (20% each)
- Term project (10%)
- Final exam (35%)

Homework is due in one week.

Term project including Matlab work will be assigned. Written report and oral presentation required.

Two in-class exams (after Ch. 5 & Ch. 9, respectively) – closed book, one formula-sheet allowed.

The final exam is on Tuesday, December 8, 8:00pm – 10:00pm (conflict time), EN 317

Attendance:

1. Class attendance is required and will be recorded. You must sign in on a sign-in sheet passed around during class. You should contact the instructor in advance if you cannot make a class. Unsatisfactory attendance may lead to 5% decrease in your final score.
2. **No make-up tests** will be given except for illness or bonafide emergencies. If you cannot make a midterm test due to some excusable reason you must contact the instructor in advance (or ASAP) to see if some arrangement can be made. Otherwise you will receive 0 points on the test.

Student Conduct in Class:

All students are expected to know the UNO Student Code of Conduct and adhere to it in this class (please, refer to <http://www.studentaffairs.uno.edu>). Among other things, students should come in class on time and have their **cell phones turned off**. Students are highly encouraged to get actively involved in class and ask questions, but this should not be done in a disruptive manner.

Academic Integrity:

Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Student Code of Conduct for further information. The Code is available online at <http://www.studentaffairs.uno.edu>

Class Communications:

Moodle will be widely used for communication, announcements, posting course notes, assignments, solutions, grades, *etc.* Students should have course access at <http://www.uno.edu/moodle> .

Accommodations for Students with Special Needs:

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to <http://www.ods.uno.edu>.

Important Dates*

Last day to adjust schedule w/out fee.....	08/18/2015
Semester Classes Begin	08/19/2015
Last day to adjust schedule w/fee, or withdraw with 100% refund.....	08/25/2015
Last day to apply for December commencement.....	09/25/2015
Final day to drop a course or resign	10/14/2015
Mid-semester examinations.....	10/05-10/09/2015
Final examinations	12/07-12/11/2015
Commencement.....	12/18/2015

*Note: check Registrar's website for Saturday and A/B sessions,
and for items not listed here: <http://www.registrar.uno.edu>

Fall Semester Holidays

Labor Day	09/07/2015
Mid-semester break	10/15-10/16/2015
Thanksgiving.....	11/26-11/27/2015

Withdrawal Policy – Undergraduate only

Students are responsible for initiating action to resign from the University (withdraw from all courses) or from a course on or before dates indicated in the current Important dates calendar. Students who fail to resign by the published final date for such action will be retained on the class rolls even though they may be absent for the remainder of the semester and be graded as if they were in attendance. Failure to attend classes does not constitute a resignation. Check the dates on the Registrar's website, <http://www.registrar.uno.edu>. Please consult The Bulletin for charges associated with dropping and adding courses.

Incomplete Policy – Undergraduate only

The grade of I means *incomplete* and is given for work of passing quality but which, because of circumstances beyond the student's control, is not complete. The issuance of the grade of I is at the discretion of the faculty member teaching the course. For all graduate and undergraduate students, a grade of I becomes a grade of F if it is not converted before the deadline for adding courses for credit (as printed in the Important Dates Calendar) of the next regular semester including summer semester.

Repeat Policy

When a student is permitted to repeat a course for credit, the last grade earned shall be the one which determines course acceptability for degree credit. A student who has earned a C or better in a course may not repeat that course unless, (1) the catalog description indicates that the course may be repeated for credit, or (2) the student's Dean gives prior approval for documented extenuating circumstances.

Graduate Policies

Graduate policies often vary from undergraduate policies. To view the applicable policies for graduate students, see the Graduate Student Handbook:

<http://www.uno.edu/grad/documents/GraduateStudentHandbook2014.pdf>

Academic Dishonesty Policy

<http://www.uno.edu/student-affairs-enrollment-management/documents/academic-dishonesty-policy-rev2014.pdf>

Safety Awareness Facts and Education

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

<http://www.uno.edu/student-affairs-enrollment-management/>

UNO Counseling Services and UNO Cares

UNO offers care and support for students in any type of distress. Counseling Services assist students in addressing mental health concerns through assessment, short-term counseling, and career testing and counseling. Find out more at

<http://www.uno.edu/counseling-services/>. First-year students often have unique concerns, and UNO Cares is designed to address those students' needs. Contact UNO Cares through <http://www.uno.edu/fye/uno-cares.aspx>.

Emergency Procedures

Sign up for emergency notifications via text and/or email at E2Campus Notification: <http://www.uno.edu/ehso/emergency-communications/index.aspx>. All emergency and safety procedures are explained at the Emergency Health and Safety Office: <http://www.uno.edu/ehso/>.

Diversity at UNO

As the most diverse public university in the state, UNO maintains a Diversity Affairs division to support the university's efforts towards creating an environment of healthy respect, tolerance, and appreciation for the people from all walks of life, and the expression of intellectual point of view and personal lifestyle. The Office of Diversity Affairs promotes these values through a wide range of programming and activities.

<http://diversity.uno.edu/index.cfm>

Learning and Support Services

Help is within reach in the form of learning support services, including tutoring in writing and math and other supplemental instruction. Visit the Learning Resource Center in LA 334, or learn more at <http://www.uno.edu/lrc/>.

Affirmative Action and Equal Opportunity

UNO is an equal opportunity employer. The Human Resource Management department has more information on UNO's compliance with federal and state regulations regarding EEOC in its Policies and Resources website: <http://www.uno.edu/human-resource-management/policies.aspx>