University of Maryland, College Park
Clark School of Engineering

ENME454 Vehicle Dynamics - Fall 2014
Syllabus

Instructor: Dr. Vincent Nguyen
M0102 Engineering Lab Building (EGL)
vince1@umd.edu
Office Hours: M 4:45-5:45 or by appointment

TA: Bryan Hays
0107 Engineering Building (EGR)
bhays@hazenet.com
Office Hours: Tu 3:30-4:30

Class Info: M/W 3:30 PM – 4:45 PM in JMP 3201

Course Website:
Handled through Canvas: https://myelms.umd.edu/

Lecture Participation:
Handled through TopHat: https://tophat.com/

Co-requisites: ENME361

Textbook: Fundamentals of Vehicle Dynamics, Tom Gillespie, Society of Automotive Engineers

---

Course Description:

The fundamentals of passenger vehicle and light truck design and vehicle dynamics are covered. The engineering principles associated with acceleration, braking, handling, ride quality, aerodynamics, and tire mechanics are discussed, as well as suspension and steering design.

Grading:

Homework	35%
Lecture Participation	5%
Midterm 1	17.5%
Midterm 2	17.5%
Final	25%

Attendance Policy:
Regular attendance is expected. Each student is responsible for inquiring about and obtaining course material delivered in their absence (from course colleagues).

Only one excused absence will be allowed from a lecture or quiz. Subsequent absences will require proper documentation. Tests are considered "major grading events" and will require proper documentation, and notification must be provided to the instructor as soon as possible.

University policy excuses the absences of students for illness (self or dependent), religious observances (http://www.president.umd.edu/policies/iii510a.html), participation in University activities at the request of University authorities, and compelling circumstances beyond the student's control. Students must submit the request in writing and supply appropriate documentation, e.g. medical documentation. For more information see the University's Attendance and Assessment Policy (http://www.umd.edu/catalog/index.cfm/show/content.section/c/27/ss/1584/s/1540)

Academic Integrity and Academic Dishonesty:
Please review the university policy on academic integrity and academic dishonesty at http://www.jpo.umd.edu/ and http://www.studenthonorcouncil.umd.edu/code.html. Also note that no form of plagiarism will be tolerated. All work presented to the instructor is assumed to be the original work of the course participant(s). Words, diagrams, figures, or original contributions of anyone other than a student must be referenced when included in a student's work. The course instructor may request evidence of references for any submitted work. A useful website on Academic Integrity and Plagiarism is maintained by the UM Library at http://www.lib.umd.edu/UES/honesty.html.

University wide Honor Code:
The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit: http://www.shc.umd.edu.

To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: "I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment)."

Online Course Evaluation:
Students can go directly to the website (www.courseevalum.umd.edu) to complete their evaluations. They will be alerted via their official University e-mail account about the dates of the evaluation period and provided more information closer to that time.

Students who complete evaluations for all of their courses in the previous semester (excluding summer), can access the posted results via Testudo's CourseEvalUM Reporting link for any course on campus that has at least a 70% response rate.

ENME 454
Vehicle Dynamics
Fall 2014 Schedule
(Subject to modifications and adjustments)

Date	Day	Topic
9/3	Wed	Introduction and Dynamics Review
9/8	Mon	Axle Loads. Grades, Acceleration Performance
9/10	Wed	Powertrain and Transmission Design Basics
9/15	Mon	Transmission Design- Automatics
9/17	Wed	Transmission Design- Manuals
9/22	Mon	Basic Engine Design and Differential Design
9/24	Wed	Brake Performance and Design
9/29	Mon	Brake System Design Exercise
10/1	Wed	Brake Performance and Design
10/6	Mon	Homework recap; Road Loads- Aero, rolling resistance
10/8	Wed	Road Loads- Aero, rolling resistance
10/13	Mon	Hybrid Vehicle Powertrains
10/15	Wed	Review Exam #1
10/20	Mon	**Exam #1**
10/22	Wed	Exam #1 recap, Intro to Tires
10/27	Mon	Tires
10/29	Wed	Steady State Cornering
11/3	Mon	Steady State Cornering
11/5	Wed	Steady State Cornering
11/10	Mon	Suspensions Intro
11/12	Wed	Suspension Design: Anti-squat, Anti-Pitch, Anti-Dive
11/17	Mon	Suspension Design: Roll Centers
11/19	Wed	Lateral Load Transfer; Review for Exam #2
11/24	Mon	**Exam #2**
11/26	Wed	**- No class (Day before Thanksgiving) -**
12/1	Mon	Ride rates
12/3	Wed	Shocks + Ride Modeling
12/8	Mon	Steering
12/10	Wed	Review
12/17	**Wed**	**Final Exam**