

San Jose State University
Mechanical & Aerospace Engineering

Course:	ME 186 – Automotive Engineering
Course Code:	41858 section 1
Semester:	Fall 2016
Prerequisites:	ME 114, ME 130, ME 154. You must turn in an unofficial transcript with the prerequisites highlighted by the second class period, or you will be dropped from the class.
Credit Units:	3 Lecture
Instructor:	Ken Chung, Ph.D.
Class Days/Time:	Seminar: Wednesday 6:00-8:45 pm
Classroom:	Engineering Building room #327
Office Hours:	Wednesday 5:30-6pm (Engr. room #348) and 9:00-9:30pm (Engr. room #327). Phone: (408) 289-3642 (W) or (408) 482-6191 (C) Email: ting-hong.chung@sjsu.edu
Description:	Overview of automotive engineering including power plant, structures, suspension, steering, brakes, tires, and drive train. Application of engineering principles in automotive design and analysis. Introduction to alternative vehicle technologies. Use of mechanical engineering principles for automobile performance analysis.
Course Goals:	<ol style="list-style-type: none">1. Learn automotive specific engineering principles2. Learn basic automobile operational principles3. Study alternative vehicle technologies4. Apply engineering principles to automotive component design5. Apply engineering principles to analyze automobile stability and handling.
Student Learning Objectives:	<ol style="list-style-type: none">1. The ability to identify various components of automotive vehicles2. The ability to describe various automotive operational principles3. The ability to calculate basic automotive performance parameters4. The ability to describe automotive systems in terms of engineering models5. The ability to apply simple concepts in automotive design processes
Required Text:	<u>Fundamentals of Vehicle Dynamics</u> , by Thomas D. Gillespie. ISBN 1.56091-199-9
Reference Texts:	<u>Automotive Engineering Fundamentals</u> , by Stone & Ball. SAE press ISBN 0-7680-0987-1
Grading:	Homework 20% Midterm exam 30% Project 20% Final exam 30%

Final exam date and time: 12/14 at 5:15pm

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Course Topics and Schedule:

Week	Date	Topic
1	08/24/2016	Course overview. Term project. Automobile power plants. HW #1
2	08/31/2016	Engine – the prime mover
3	09/07/2016	Engine - Continued. Project proposal Due
4	09/14/2016	Driveline and Transmission. HW #1 Due
5	09/21/2016	Acceleration and braking performance
6	09/28/2016	Road loads. HW #2 Due
7	10/05/2016	Ancillaries
8	10/12/2016	Midterm Exam – covers weeks 1-7, HW #3 Due
9	10/19/2016	Vehicle ride
10	10/26/2016	Pneumatic tires and Steady-state Cornering.
11	11/02/2016	Cornering and Steering; HW#4 Due
12	11/09/2016	Suspension
13	11/16/2016	Suspension - Continued. Engine/Transmission tear down lab
14	11/23/2016	No Class –Thanksgiving
15	11/30/2016	Alternative drive system. HW #5 Due
16	12/07/2016	Term project presentation. Final exam review. HW#6 Due.
17	12/14/2016	Final exam at <u>5:15pm</u>

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Classroom Protocol

Regular attendance and active participation are encouraged. Please attend to non-classroom related discussion outside of the classroom.

University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. To learn important campus information, view [University Policy S16-15](#), and SJSU current semester's [Policies and Procedures](#). In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not address the issue, it is recommended that the student contact the Department Chair as the next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](#). Students should be aware of the current deadlines and penalties for dropping classes ([Late Drop Information](#)).

Information about the latest changes and news is available at the [Advising Hub](#).

Consent for Recording of Class and Public Sharing of Instructor Material

[University Policy S12-7](#), requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

- - "Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material."
 - It is suggested that the greensheet include the instructor's process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
 - In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.

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- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy F15-7](#) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. Visit the [Student Conduct and Ethical Development](#) website for more information. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person’s ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](#) requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](#) (AEC) to establish a record of their disability.

“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.”