San Jose State University
Mechanical & Aerospace Engineering

Course: ME 186 – Automotive Engineering
Course Code: 42251 section 1
Semester: Fall 2015
Credit Units: 3 Lecture
Instructor: Ken Chung, Ph.D.
Class Hours: Wednesday 6:00-8:45 pm
Classroom: Engineering Building 303
Office Hours: Wednesday 5:30-6pm and 9:00-9:30pm. 
Phone: (408) 289-3642 (W) or (408) 482-6191 (C)
Email: kchung@simbleinc.com

Prerequisites: ME 114, ME 130, ME 154. Students must sign consent & acknowledgement form.

Course 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:
1. Learn automotive specific engineering principles
2. Learn basic automobile operational principles
3. Study alternative vehicle technologies
4. Apply engineering principles to automotive component design
5. Apply engineering principles to analyze automobile stability and handling.

Course Learning Outcomes:
1. The ability to identify various components of automotive vehicles
2. The ability to describe various automotive operational principles
3. The ability to calculate basic automotive performance parameters
4. The ability to describe automotive systems in terms of engineering models
5. The ability to apply simple concepts in automotive design processes


Grading:
Homework 20%
Midterm exam 30%
Project 20%
Final exam 30%
### San Jose State University
#### Mechanical & Aerospace Engineering

**Course Topics and Schedule:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/26/2015</td>
<td>Course overview. Term project. Automobile power plants. HW #1</td>
</tr>
<tr>
<td>2</td>
<td>09/02/2015</td>
<td>Engine – the prime mover</td>
</tr>
<tr>
<td>3</td>
<td>09/09/2015</td>
<td>Driveline and Transmission. HW #1 and project proposal Due</td>
</tr>
<tr>
<td>4</td>
<td>09/16/2015</td>
<td>Acceleration and braking performance</td>
</tr>
<tr>
<td>5</td>
<td>09/23/2015</td>
<td>Road loads. HW #2 Due</td>
</tr>
<tr>
<td>6</td>
<td>09/30/2015</td>
<td>Auxiliaries</td>
</tr>
<tr>
<td>7</td>
<td>10/07/2015</td>
<td>Midterm Exam – covers weeks 1-6, HW #3 Due</td>
</tr>
<tr>
<td>8</td>
<td>10/14/2015</td>
<td>Vehicle ride; Engine/Transmission tear down lab; HW #4</td>
</tr>
<tr>
<td>9</td>
<td>10/21/2015</td>
<td>Pneumatic tires and Steady-state Cornering.</td>
</tr>
<tr>
<td>10</td>
<td>10/28/2015</td>
<td>Cornering and Steering; HW#4 Due</td>
</tr>
<tr>
<td>11</td>
<td>11/04/2015</td>
<td>Suspension</td>
</tr>
<tr>
<td>12</td>
<td>11/11/2015</td>
<td>No Class – Veteran’s Day</td>
</tr>
<tr>
<td>13</td>
<td>11/18/2015</td>
<td>Alternative drive systems and Prius lab HW #5 Due</td>
</tr>
<tr>
<td>14</td>
<td>11/25/2015</td>
<td>No Class – Thanksgiving</td>
</tr>
<tr>
<td>15</td>
<td>12/02/2015</td>
<td>Term project presentation. Final exam review. HW#6 Due.</td>
</tr>
<tr>
<td>16</td>
<td>12/09/2015</td>
<td>No Class</td>
</tr>
<tr>
<td>Final Exam</td>
<td>12/16/2015</td>
<td>5:15pm</td>
</tr>
</tbody>
</table>
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. See University Policy S90-5 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. 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 serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Dropping and Adding
Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latdrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Consent for Recording of Class and Public Sharing of Instructor Material
University Policy S12-7, http://www.sjsu.edu/senate/docs/S12-7.pdf, 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.”
  o 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.
  o 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.
- “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 S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) requires you to be honest in all your academic coursework. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at [http://www.sjsu.edu/studentconduct/](http://www.sjsu.edu/studentconduct/).

**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](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) requires that students with disabilities requesting accommodations must register with the [Accessible Education Center (AEC)](http://www.sjsu.edu/aec) at [http://www.sjsu.edu/aec](http://www.sjsu.edu/aec) to establish a record of their disability.