Fall 2014  
Section # 02482 12:30pm-03:20pm TTh  
Instructor: Michael McCart  
Office Phone # 408-864-8376 (during office hours)  
E-mail mccartmichael@deanza.edu (best way to communicate)  
Class meetings: Sept. 22 – Dec. 12  
Classroom: G8  
Office hours Instructor’s office hours will be 5-6 PM, M, T, W, TH in office E14A.  
Automotive website http://www.deanza.edu/autotech/  

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.

Six hours lecture-laboratory (equivalent to seventy-two hours per quarter).

Student Learning Outcomes

Demonstrate the ability to diagram and construct compound mechanical and pneumatic machines, calculating the mechanical advantage for the individual components as well as the complete system.

Final Exam  
Friday, December 12, 11:30am-01:30pm  
Will be changed

Disruptive Behavior

A. De Anza College will enforce all policies and procedures set forth in the Standards of Student Conduct (see catalog). Any student disrupting a class may be asked to leave that class. After administrative review, the instructor may drop the student from the class.

B. Repeated cell phone interruptions will not be tolerated. Turn cell phones off during class and keep them in your backpacks.

C. There will be no eating, drinks, or chewing tobacco or gum in this classroom.

D. Smoking in designated areas only.

Attendance

Students will be dropped after two or more absences.

IMPORTANT NOTICE

NONE OF THE EXAMINATIONS OR THE LABORATORY EVALUATIONS MAY BE MADE UP UNLESS PRIOR AUTHORIZATION IS ARRANGED WITH THE INSTRUCTOR. OTHER LATEWORK WILL BE LOWERED ONE WHOLE GRADE

Auto 53A

This course covers the application of physical principles to the operation of mechanical, hydraulic, and hydromechanical systems, using an applied physics technique.
Required equipment
A. Mechanical Power and Fluid Power workbooks (handed out in class)
B. Scientific calculator (not your cell phone)
C. Notebook and pencil

Expanded Description: Content and Form
A. Explain motion and equilibrium.
   1. Inertia
   2. Friction.
B. Classify lever systems and applications.
   1. First, second and third class levers.
   2. Calculations of gains vs. losses.
   3. Identification and uses.
C. Describe the function of an incline plane.
   1. Calculations of gains vs. losses.
   2. Applications.
   3. Use of the screw-thread.
D. Explain the various uses of pulley systems.
   1. Use as a first, second, or third class lever.
   2. Calculations of gains vs. losses.
   3. Applications.
E. Explain the power distribution through compound gear sets.
   1. Gear trains and types.
   2. Transfer of power.
   3. Compounding.
   4. Planetary gear applications.
   5. Calculations of gains vs. losses.
   6. Applications.
F. Describe the differences in hydraulic and pneumatic systems.
   1. Pascal's Law.
   2. Fluid pressures.
   3. Pressure measuring systems and meters.
   4. Static fluid systems.
   5. Dynamic fluid systems.
   6. Calculations of gains vs. losses.
   7. Applications.
G. Classify the individual components in compound and complex machines.
   1. Identification procedures.
   2. Calculations of gains vs. losses.
H. Distinguish the differences in mechanics of heat transfer and the states of matter.
   2. Evaporation, condensation.

Methods of Evaluating Objectives
A. Unannounced problem-solving quizzes.
B. Two objective midcourse examinations.
C. A comprehensive and objective final examination.
D. Class participation per department policy.
Tentative assignments

Week one
Day one
Introduction, Inventory experimenters
Day two
Inertia, Equilibrium

Week two
Day one
First class lever
Day two
Second class lever

Week three
Day one
Third class lever
Day two
Inclined plane

Week four
Day one
Pulleys
Day two

Week five
Day one
Transmission of power
Day two
Wheel and axle

Week six
Day one
Day two

Midterm 1

Week seven
Day one
Introduction to fluid power
Day two
Pressure and vacuum

Week eight
Day one
Cylinder compressors
Day two
Fluid control Valves

Week nine
Day one
Differential forces and air motors
Day two
Directional control

Week ten
Day one
Speed control
Day two
Midterm 2

Week eleven
Day one
Compound machines, heat transfer
Day two
Review and make up

Week twelve
Final exam

Grading
Classroom worksheets 8 at 5 points 40
Combination machines
Quizzes 4 at 31 points 124
Workbooks 2 at 40 points 80
Midterm 1
Midterm 2
Final

Total 600

Auto 53A
Grade definitions are as follows:

<table>
<thead>
<tr>
<th>Points</th>
<th>Letter grade</th>
<th>Percentage</th>
<th>Grade points</th>
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<tbody>
<tr>
<td>576-600</td>
<td>A+ Excellent</td>
<td>96-100%</td>
<td>4.0</td>
</tr>
<tr>
<td>540-575</td>
<td>A Excellent</td>
<td>90-95.9%</td>
<td>4.0</td>
</tr>
<tr>
<td>520-539</td>
<td>A- Excellent</td>
<td>86.6-89.9%</td>
<td>3.7</td>
</tr>
<tr>
<td>500-519</td>
<td>B+ Good</td>
<td>83.3-86.5%</td>
<td>3.3</td>
</tr>
<tr>
<td>480-499</td>
<td>B Good</td>
<td>80-83.2%</td>
<td>3.0</td>
</tr>
<tr>
<td>460-479</td>
<td>B- Good</td>
<td>76.6-79.9%</td>
<td>2.7</td>
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<tr>
<td>440-459</td>
<td>C+ Satisfactory</td>
<td>73.3-76.5%</td>
<td>2.3</td>
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<tr>
<td>420-439</td>
<td>C Satisfactory</td>
<td>70-73.2%</td>
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<tr>
<td>390-419</td>
<td>D+ Passing, less than satisfactory</td>
<td>65-69.9%</td>
<td>1.3</td>
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<tr>
<td>360-389</td>
<td>D Passing, less than satisfactory</td>
<td>60-64.9%</td>
<td>1.0</td>
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<tr>
<td>340-359</td>
<td>D- Passing, less than satisfactory</td>
<td>56.6-59.9</td>
<td>0.7</td>
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<tr>
<td>Below 339</td>
<td>F Failing</td>
<td>Below 56.6</td>
<td>0.0</td>
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*This schedule is subject to change without notice* It is intended to be a general guide during the quarter. The schedule and procedures for this course are subject to change at the discretion of the instructor.
Name: ___________________________________
E-mail: ___________________________________
Contact phone number: ______________________

What do you expect out of this class?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Do you work part-time/full-time? __________________________ If so, where do you work and what are your duties.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Are you a full-time or part-time student? ___________________. What is your major of study and your educational goals?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Are you ASE certified and if so what areas? ______________________________________

What is your career objective?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Do you plan to earn an AS degree? _______________________________________________

List all of your experience working as a mechanic.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

List auto courses taken or enrolled in.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Special needs
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________