De Anza College
AUTOMOTIVE TECHNOLOGY 53A
Auto mechanisms 3 Units
Green Sheet

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.
    1. Conduction, convection, radiation.
    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.

Auto 53A

Tentative assignments

Week one,		
Day one	Introduction, Inventory experimenters	
Day two	Inertia, Equilibrium	M-1 and M-2
Week two		
Day one	First class lever	M-3
Day two	Second class lever	M-4
Week three		
Day one	Third class lever	M-5
Day two	Inclined plane	M-6
Week four		
Day one	Pulleys	M-7 and M-8
Day two	Gears	M-9
Week five		
Day one	Transmission of power	M-10 and M-11
Day two	Wheel and axle	M-12
Week six		
Day one		
Day two	**Midterm 1**	**Mechanical workbook due**
Week seven		
Day one	Introduction to fluid power	
Day two	Pressure and vacuum	F-1 and F-2
Week eight		
Day one	Cylinder compressors	F-5 and F-6
Day two	Fluid control Valves	F-3 and F-4
Week nine		
Day one	Differential forces and air motors	F-7 and F-8
Day two	Directional control	F-9 and F-10
Week ten		
Day one	Speed control	F-11 and F-12
Day two	**Midterm 2**	**Fluid workbooks due**
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		6
Quizzes	4 at 31 points	124
Workbooks	2 at 40 points	80
Midterm 1		75
Midterm 2		75
Final		200
	Total	**600**

Grade definitions are as follows:

Evaluative Symbols, Percentages and Grade Points

Points	Letter grade	Percentage	Grade points
576-600	A+ Excellent	96-100%	4.0
540-575	A Excellent	90-95.9%	4.0
520-539	A- Excellent	86.6-89.9%	3.7
500-519	B+ Good	83.3-86.5%	3.3
480-499	B Good	80-83.2%	3.0
460-479	B- Good	76.6-79.9%	2.7
440-459	C+ Satisfactory	73.3-76.5%	2.3
420-439	C Satisfactory	70-73.2%	2.0
390-419	D+ Passing, less than satisfactory	65-69.9%	1.3
360-389	D Passing, less than satisfactory	60-64.9%	1.0
340-359	D- Passing, less than satisfactory	56.6-59.9	0.7
Below 339	F Failing	Below 56.6	0.0

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.

Student Information (All information is voluntary)
Please print clearly

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

_____
_____
_____
_____