

**DE ANZA COLLEGE  
AUTOMOTIVE TECHNOLOGY  
A.T. 91A - AUTOMOTIVE BRAKE SYSTEMS  
GREEN SHEET**

AUTOMOTIVE TECHNOLOGY 91A

I. Catalog Information

AUTO 91A            Automotive Brake Systems            5 Units

Prerequisite: Approved Automotive Technology Course Sequence Contract.

Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4), Mathematics 101.

Ten hours lecture-laboratory per week

One hundred twenty hours lecture-laboratory per quarter

Repair, maintenance and troubleshooting of automotive brake systems.

II. Course Objectives

The student will:

- A. Define the basic design and operation of automotive brake systems.
- B. Classify the different types automotive brake systems.
- C. Describe the industry accepted techniques for maintenance, repair and troubleshooting.
- D. Demonstrate the ability to troubleshoot and repair these systems.

III. Essential student materials

- A. Safety glasses
- B. Approved coveralls and work shoes
- C. Basic hand tools and required specialty tools as stated on the Automotive Technology General Chassis and Powertrain tool lists.

#### IV. Essential College Facilities

Lecture classroom and automotive laboratory

#### V. Expanded Description Content and Form

- A. Introduction to automotive brake systems
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
- B. Principles of hydraulics
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
- C. Master cylinder, hydraulic valves and switches
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures
- D. Drum brake systems
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures
- E. Disc brake systems
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures
- F. Parking brake operation and service
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures
- G. Machining brake drums and rotors
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures
- H. Power brake operation
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures

- I. Antilock brake operation, diagnosis and service
  - 1. Theory
  - 2. Service techniques
  - 3. Disassembly, inspection and repair
  - 4. Troubleshooting procedures

VI. Assignments

Reading assignments from textbooks and handouts.  
Completion of required laboratory activities.

VII. Methods of Evaluating Objectives

- A. Satisfactory completion of required course notebook and laboratory activities **(200 Pts)**  
***Notebooks are due @ 12:10 PM Thursday, December 3<sup>rd</sup>***
- B. Objective and written quizzes **(100 Pts)**
- C. Midterm examination **(150 Pts)**
- D. Final examination **Thursday, December 11<sup>th</sup> (200 Pts)**
- E. Laboratory performance examination **(300 Pts)**
- F. Homework **(50 Pts)**
- G. First year students Scholarship essay **(50 Pts) 25** bonus points when you show me a response letter.
- F. Second and Third year students submit seven scholarship applications and show me the response letters. Each letter is worth 10 points **(70 Pts) 5** bonus points for doing all seven.
- H. Two failing grades in one year is grounds for removal from the program.

**Objective:**

Given a vehicle and tools, you are to remove, mount and balance, and reinstall two tire and wheel assemblies, according to recognized industry standards in 30 minutes.

**Tire and Wheel Performance Test/Assessment**

**Directions:**

At vehicle lift station one you are to remove, mount and balance, and reinstall two tire and wheel assemblies. The scoring rubric is listed below; your instructor's evaluation will determine your competence level in this task.

Criteria	Outstanding (5 Pts)	Proficient (4 Pts)	Satisfactory (3 Pts)	Limited (2 Pts)
The learner followed recognized safety procedures.				
The learner removed and mounted the tires on the wheel assemblies according to recognized industry standards.				
The learner balanced the tire and wheel assemblies according to recognized industry standards.				
The learner mounted the tires and wheel assemblies on the vehicles according to recognized industry standards.				
The learner completed the work order story.				
The learner completed the task in 30 minutes.	<b>Yes (5 Pts)</b>		<b>No (0 Pts)</b>	

## VIII. Texts and Supporting References

Texts:

A. Prentice-Hall, *Automotive Chassis Systems 6<sup>th</sup> ed*,  
Halderman, Englewood Cliffs, New Jersey

References:

Manufacturers service manuals as required

Reading Assignments: As required

## IX. Other Related Information

1. Instructor: Randy Bryant

2. Office: E14d

3. Office hour: 12:20 - 1:20 and by appointment

4. Telephone: (408) 864-8840 Office

5. E-mail: bryanrandy@fhda.edu

6. Grading standards:

A = 94 - 100 percent  
A- = 90 - 93 percent  
B+ = 87 - 89 percent  
B = 83 - 86 percent  
B- = 80 - 82 percent  
C+ = 77 - 79 percent  
C = 70 - 76 percent  
D+ = 67 - 69 percent  
D = 63 - 66 percent  
D- = 60 - 62 percent

7. *Student Behavior* - Students are expected to abide by the policies listed in the De Anza Fall schedule of Classes 2015. Student behavior, which violates these standards, may be cause for removal from this course. Students should obtain a copy of the "*De Anza College Resource Guide*", if they desire more information.

8. *Classroom and Laboratory conduct* -

a. Students will be dismissed from class for disruptive behavior per college policy.

- b. Students will wear safety glasses, coveralls, and work shoes for the duration of lab activity.
- c. Students must have all required hand tools available for lab activity; basic hand tools will not be checked out from the tool room after the first six weeks. Random spot checks of tools will be made.
- d. Students are to remain in assigned areas through clean-up. Punch out on time cards only after clean-up has been completed. (**Your instructor will determine if clean-up is complete!**)
- e. There is one 20 minute break between lecture and lab. Your instructor will check roll at the start of lab activity. Do not leave campus while on break!
- f. It is expected that lab activity will be completed with pride and craftsmanship and that students will perform warranty services. If overtime is required, consider it the equivalent of homework.
- g. All "LIVE" lab work must be entered on a repair order, estimated, authorized by the customer and initialed by the instructor.

9. Participation

Just as on the job, regular, punctual attendance is required. Always call in if you are going to be absent. The following limits and conditions apply per department policy:

- A. Students must record attendance on a time card. Punch in prior to 7.30AM (start of class) and out not before 12:10 (end of class).
- B. For each tardy, there is a 1-hour penalty. *7:30AM is tardy.*
- C. Forgetting to punch in or out will constitute a 1-hour penalty.
- D. Up to 5 hours (each 6 weeks) can be made up providing the student calls in. Missed time cannot be made up if the student does not call in prior to class. Hours not made up will be deducted from total class points at the rate of

- 1% per hour. The instructor will specify terms and conditions for make-up.
- E. Hours must be made up prior to midterm and finals week.
  - F. Incomplete grades may be given in instances of long-term illness or injury.
  - G. To drop without penalty, a drop form must be filed by the date specified in the schedule of classes.
  - H. Do NOT ever punch in or out for another student. If I find out that you do, you will have the next day off (5 HRS lost without make-up time).

#### 10. Smoking Policy

- A. As the result of a November 2004 survey of all students and employees, and the work of a district-wide committee, the Foothill-De Anza Community College District Board of Trustees approved a revised no smoking policy on June 20, 2005. In order to provide a safe learning and working environment for students and employees, smoking is prohibited in all indoor and outdoor campus locations, with the exception of designated parking lots.

Smoking is permitted only in the following areas:

Student Parking Lots

Top floor of the Stelling and Flint parking structures

Staff Parking Lot J

Staff Parking Lot A-1 (near the new Student and Community Services Building)

