

**DE ANZA COLLEGE  
AUTOMOTIVE TECHNOLOGY  
A.T. 63A - ADVANCED MANUAL DRIVE TRAIN  
COURSE OUTLINE/GREENSHEET**

**I. AUTOMOTIVE TECHNOLOGY 63A**

Catalog Description

AUTO 63A      Adadvanced Manual Drive Train      9.0 Units

Advisory: Auto 50A and B, Math 101, Read 91 and Ewrit  
100B or ESL4 or LART 100

Four and one-half hours lecture per week

108 hours lecture per quarter

Details of operation and repair of automotive manual drive train components. The design operation and repair of four wheel and all wheel drive components, as well as the theory and practical application of the diagnosis of noise and vibrations in the drive train based on frequency calculation and measurement. Service and repair procedures, product problem discussions and demonstrations. Preparation for Automotive Service Excellence (ASE) certification examination in Area A3.

**II. Course Objectives**

The students will:

- A. Describe drive line component operation and the the relationships between drive line components.
- B. Explain the operation of the major components in a rear axle assembly.
- C. Explain the operation of a front 4WD differential assembly
- D. Explain the operation of the major components in the clutch mechanism.
- E. Explain the operation of the major components in the standard transmission.
- F. Describe the operation of overdrive standard 4 and 5 speed transmissions.
- G. Explain the operation of a transfer case

- I. Calculate and measure vibration frequencies from various driveline components
- H. Identify the service requirements of drive train components.
- I. Inspect and estimate the required repairs needed to return selected drive train components back into service.

### III. Essential Student Materials

Safety glasses

### IV. Essential College Facilities

Lecture classroom and automotive laboratory for demonstrations

### V. Assignments

Reading assignments from textbook and handouts.

### VI. Methods of Evaluating Objectives

- A. Weekly objective and written quizzes
- B. Midterm examination
- C. Completion of lab activities.
- D. Final examination.

### VII. Texts and Supporting References

Texts:

- A. Manual drivetrains and axles by Tom Birch  
ISBN# 978-0-13-512362-1
- B. References  
Manufacturers service manuals as required

## VIII. OTHER RELATED INFORMATION

1. Instructor: Rick Maynard
2. Office: E14c
3. Office hour: 5:00 - 5:50 PM
4. Telephone: (408) 864-8704 Office
5. e-mail : maynardrick@fhda.edu
6. **STUDENT BEHAVIOR** - *students are expected to abide the policies listed in the current De Anza Schedule of Classes. Student behavior which violates these standards may be cause for removal from this course. Students desiring more information should obtain a copy of the "De Anza College Resource Guide".*

### Classroom and Lab Conduct

- A. Students will be dismissed from class for disruptive behavior per college policy.
- B. Wear safety glasses and work shoes for the duration of labs.
- C. All required tools must remain available for lab activities.
- D. Students are to remain in assigned areas through cleanup.
- E. There is one 20-minute break between lecture and lab. The instructor will check roll at start of lab.
- F. It is expected that work will be completed with pride and craftsmanship and that students will perform warranty services if necessary. If overtime is required, consider it the equivalent of homework.

### Security

It is understood that the facility and all within is exposed. It is therefore necessary that each and every student assume responsibility for their own security and that of other students and the department. To this end, observe the following guidelines:

- A. Watch out for fellow students' tools and secure them as well if necessary.
- B. Do not allow strangers to roam lab areas. Ask questions and secure unattended lab areas.
- C. If you unlock a door or cabinet outside of class time, lock it when done.
- D. Do not enter the tool room unless accompanied by your instructor.

### Parking

Parking permits for use in designated areas are available in the Administration Building. Do not park in any shop space. These are reserved for shop activities. Cars parked improperly are subject to citation or will be moved.

### Calendar:

- 6 April- Start of class
- 19 April - Last day to drop or add
- 13 May - Midterm
- 25 May - Holiday
- 29 May - Last day to withdraw
- 22 June- Final exam