

LEWIS AND CLARK COMMUNITY COLLEGE  
GODFREY, ILLINOIS  
**AUTO 140 - ORIENTATION TO AUTOMOTIVE TECHNOLOGY**  
Course Syllabus

---

## **A. COURSE DESCRIPTION**

### **AUTO 140 ORIENTATION TO AUTOMOTIVE TECHNOLOGY**

Introduces various employment opportunities in the automotive industry. Includes the proper identification and use of fasteners, fittings, hand, power, cutting and precision measuring tools utilized in the automotive industry. Shop safety, Automotive Service Excellence (ASE) certification, metric and English units of measurements, interpretation of a material safety data sheet (MSDS), proper use of shop manuals and software is discussed. (PCS 1.2, 1 credit hour: 1 hour lecture, 0 hours lab)

## **B. LEARNING OBJECTIVES**

Upon successful completion of the course, a student should be able to:

1. Recognize and apply shop safety procedures.
2. Demonstrate the ability to locate vehicle information in automotive repair and specification manuals and software.
3. Define the various terms used in the automotive industry.
4. Describe the various employment opportunities in the automotive industry.
5. Identify the various types of fasteners and fittings used in the automotive industry.
6. Demonstrate the ability to properly care for and use hand, power, cutting and precision measuring tools.
7. Select the proper hand, power, cutting and/or precision measuring tool for the appropriate job.
8. Explain the purpose of and procedure in acquiring "Automotive Service Excellence" certification.
9. Differentiate the metric and the English systems' unit of measurements.
10. Write a customer service order indicating the parts and labor time needed.
11. Interpret a material safety data sheet (MSOS) describing the meaning and purpose of each
12. Identify the need for service technicians to acquire knowledge about specific powertrain systems (ie., HEV systems, alternative fuel systems) item listed.

## **C. MATERIALS OF INSTRUCTION**

Required and optional student instructional materials must be approved by the department and/or dean.

1. Required student materials:

- a. *Automotive Technology Principals, My Automotive Lab Access & NATEF Job Sheets* by Halderman, Pearson Prentice Hall, latest edition
- b. Student hand tool set (Required list will be distributed at the outset of the course)
- c. Safety glasses (available in LCCC Bookstore)
- d. Dress code appropriate for automotive repair activities

2. Optional student materials:

- a. Uniforms, Lab Coats and/or Coveralls
- b. Recommended additional hand tools

3. Miscellaneous instructor and/or student material (films, slides, software, workbooks, etc.):

- a. Audio visual materials
- b. Mitchell auto repair manuals and On-Demand software
- c. Specialty tools and equipment
- d. Handouts of Current Articles
- e. Student Progress Report Sheet
- f. Homework Assignment and Answer Sheet
- g. Automotive Lab Safety Rules
- h. Automotive Student Information Sheet
- i. AUTO 140 course outline

#### **D. LEARNING RESOURCE CENTER SUPPORT MATERIALS**

The Learning Resource Center may have supplemental materials that students can use to access additional information.

#### **E. METHODS OF INSTRUCTION**

Instructional methods in this course may include, among others, the following:

1. Lecture including the use of audio visual materials.
2. Demonstrations of the use of auto repair and specification manual software.
3. Demonstrations of the use of various precision measuring tools.
4. Question and discussion.
5. Individual and group laboratory instruction.

#### **F. EVALUATION OF STUDENT ACHIEVEMENT**

The instructor's policies on evaluation will be distributed to students and the division office at the outset of the course.

The methods of evaluating student achievement will include, at minimum, the following:

1. Eleven written exams
2. Attendance and classroom participation

Additional methods of evaluation may be used and described in the course outline.

## **G. ATTENDANCE POLICY**

Regular attendance is expected. The instructor's policies on attendance will be distributed to students and the division office at the outset of the course.

## **H. COURSE CONTENT**

The following topics are to be covered during the instructional process:

1. Shop safety procedures
2. Occupations in automotive technology
  - a. General automotive technician
  - b. Specialist automotive technician
    1. Brakes
    2. Alignment, suspension and steering
    3. Engine repair and machine shop
    4. Engine performance
    5. Electrical
    6. Heating and conditioning
    7. Manual transmissions and drive lines
    8. Automatic transmission and transaxles
    9. Hybrid vehicle repair technician opportunities
  - c. Service manager
  - d. Service writer
  - e. Shop foreman
  - f. Counterman
  - g. Parts manager
  - h. Warehouse and receiving
3. Tools, fasteners and fittings
  - a. Hand tools
    1. Hammers
    2. Chisel and punches
    3. Sockets
    4. Drives and adapters
    5. Wrenches
    6. Screw drivers
    7. Pliers
    8. Torque wrenches
  - b. Precision measuring tools

1. Rules and calipers
2. Feeler gauges
3. Micrometers
4. Dial indicators
5. Vernier calipers
6. Split ball and telescopic gauges
7. Dial bore gauge
8. Plastigauge
- c. Cutting and flaring tools
  1. Files
  2. Taps and dies
  3. Chisels and punches
  4. Hacksaws
  5. Drill bits
  6. Tubing cutters
  7. Flaring tools
    - a. ISO
    - b. Single and double flare
- d. Power tools
  1. Air tools and impact wrenches
  2. Electric drills and grinders
  3. Bench grinders
- e. Fasteners and fittings
  1. Single and double flare
  2. I.S.O. flare
  3. Compression fittings
  4. Pipe fittings
  5. S.A.E. coarse and fine thread pitch
  6. Metric thread pitch
  7. Bolt strength and marking system
  8. Flat and lock washers
  9. Rivets and screws
4. Automotive service excellence certification
  - a. Certified Master Automotive Technician (CMAT)
  - b. Certified Specialist Automotive Technician
    1. Brakes
    2. Alignment, suspension and steering
    3. Engine repair and machine shop
    4. Engine performance
    5. Electrical
    6. Heating and conditioning
    7. Manual transmissions and drive lines
    8. Automatic transmission and transaxles
  5. Repair and specification manuals and software
    - a. Mitchell repair manuals
    - b. On-demand CD ROM software

6. Units of measurement
  - a. Metric systems
  - b. English systems
7. Material safety data sheets

## **I. ACCOMMODATION STATEMENT**

If you need an accommodation based on the impact of a disability, please inform me as soon as possible. An appointment will be arranged where we will discuss the course format, anticipate your needs and explore potential accommodations. I rely on Mary Hough, Special Learning Needs Counselor, for assistance in verifying the need for accommodations and accommodation strategies. If you have not previously contacted her, I encourage you to do so at 468-4128 or 468-4121. This does not apply to High School dual credit students.

## **J. ACADEMIC DISHONESTY**

Assignments that have been copied from another student or another source will not be scored. "Academic dishonesty including, but not limited to, cheating, plagiarism, and forgery, violates the STUDENT CONDUCT CODE and will lead to disciplinary action up to and including expulsion" (2004-2005 LCCC Catalogue, page 14). The following website will give you in-depth information on the definition of plagiarism and more: [http://www.turnitin.com/research\\_site/e\\_what\\_is\\_plagiarism.html](http://www.turnitin.com/research_site/e_what_is_plagiarism.html) . Please visit this site if you need clarification.

**PERSONAL TECHNOLOGY DEVICES IN THE CLASSROOM** In an effort to preserve the integrity of the academic environment, extraneous use of personal electronic devices (cell phones, bluetooth, PDAs, iPods, etc.) is prohibited during all class meetings. The instructor reserves the right to examine the device in instances where allegations of academic dishonesty are suspected. In emergency situations students must inform the instructor to receive permission to leave the classroom when their cellular phones vibrate (do not have cell phone ring or otherwise disturb the class).

**The attachments below, if any, represent Form 13 Articulation Exhibits from various universities.**