



CENTRAL PIEDMONT COMMUNITY COLLEGE

Course Syllabus AUT 110

Introduction to Automotive Technology GENERAL CURRICULUM

Syllabus Contents:

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- Safety Regulations
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Time Requirements:

- 8 Weeks
- 4 Class Hours/ Week
- 4 Lab Hours/ Week
- 3 Semester Hours Credit

Instructor: _____

E-Mail: _____

Office: _____

Phone: _____

Office hours: By appointment

AUT 110
Introduction to Automotive Technology
GENERAL CURRICULUM

Prerequisites: None

Course Description:

This course covers the workplace safety, hazardous material and environmental regulations, use of hand tools, service information resources, basic concepts, systems and terms of automotive technology. Topics include familiarization with vehicle systems along with identification and proper use of various automotive hand and power tools. Upon completion, students should be able to describe safety and environmental procedures, terms associated with automobiles, identify and use basic tools and shop equipment.

Core Competency:

CPCC has identified a set of core competencies that help each student apply their knowledge in practical ways in order to meet class goals and standards. This course will address Personal Growth and Responsibility by having students visit a dealership and comment on the job or jobs they found most appealing. They must then write a paper on the types of Skills and Personal Characteristics they must have or develop to obtain that job in the industry.

AUT 110
Introduction to Automotive Technology
GENERAL CURRICULUM
COURSE OBJECTIVES

Upon completion of this course, student should be able to:

1. Describe the basic concepts and terms of automotive technology, workplace safety, safety and environment regulations, and use of service information resources.
2. Complete the SP2 online Safety and Pollution program.
3. Identify and describe proper, safe use of automotive shop equipment.
4. Describe OSHA rules concerning exposure to blood borne diseases.
5. Describe and demonstrate emergency and building evacuation procedures.
6. Identify and use service information resources, interpret vehicle identification numbers (VIN) and under hood emissions decals.
7. Locate and describe MSDS's and Right-to-Know laws.
8. Describe the toxic effects of carbon monoxide and demonstrate proper engine exhaust gas removal from shop.
9. Describe proper disposal of automotive waste products, including hazardous wastes.
10. Describe and demonstrate professional behavior, describe normal customer and employer expectations.
11. Demonstrate how to safely put a car on a lift.
12. Identify the major systems and components that make up an automobile.
13. Demonstrate a proper oil change.
14. Inspect, and replace headlights and bulbs.
15. Demonstrate proper wheel removal/installation and tire rotation sequence.
16. Discuss and demonstrate proper procedure for tire mount and balance.
17. Demonstrate the use of Scan Tools Manufacturer specific and Generic.

WEEKLY OUTLINE
AUT 110
INTRODUCTION TO AUTOMOTIVE TECHNOLOGY
GENERAL CURRICULUM

Required Text: None

WEEK 1:

Day 1: A. Orientation: Review course syllabus, grading policy and safety regulations.
B. View blood borne pathogens video and discuss blood borne diseases.
C. Discuss Labs, Classrooms, and proper student behavior when in those areas of study, Discuss repair orders.

Day 2: A. Video: “Shop Safety”
B. Discuss general shop safety and fire extinguishers
C. *Discuss the SP2 Safety and Pollution online course that students will be working on during the course of the semester. (Time will be allotted during lab to work on this program)*
D. Discuss Material Safety Data Sheets (MSDS) Location and Right to Know Laws
E. Discuss fire extinguisher usage and location (Shop tour)

Quiz: Shop Safety and Fire Extinguishers

WEEK 2:

Day 1: A. Video: “Hand Tool Safety in the Workplace”
B. Discuss general tool safety, Discuss tools and equipment used at CPCC
C. Lab Activity Sheet #8
D. Lab Activity Sheet 9-1 & 9-2

Quiz: Shop Tools, Identification and Tool Safety

Day 2: A. Video: “Lifting It Right”
B. Discuss shop lifting equipment/procedures for raising vehicles
C. Lab Activity Sheet #1-3

WEEK 3:

Quiz: Lift Safety

- Day 1:**
- A. Discuss VIN numbering and locations, Discuss “How to Find” information in service manuals, (paper and CD-ROM types), Owner’s Manuals, and TSB’s
 - B. Handout: VIN number decoding (Manufacture Specific)
 - C. Activity Sheet # 2 Pgs. 173-174

Quiz: Service Information & VIN Numbers

- Day 2:**
- A. Discuss the major vehicle sub systems and identify them on a vehicle.
 - B. Complete job sheet (Component identification)

WEEK 4:

- Day 1:**
- A. Discuss basic engine design and components.
 - B. Discuss routine engine maintenance and related engine problems

- Day 2:**
- A. Discuss lube and cooling systems components.
 - B. Discuss routine lube / cooling system maintenance and related problems.
 - C. Demonstrate a proper oil change.

Quiz: Engine components, Lube & Cooling Systems

WEEK 5:

- Day 1:**
- A. Discuss Fuel system components, safety precautions, maintenance and problems associated with fuel systems.
 - B. Discuss Electrical system components, safety precautions, maintenance and problems associated with electrical systems.

Quiz: Fuel and Electrical Systems

- Day 2:**
- A. Discuss Drivetrain system components, safety precautions, maintenance and problems associated with Drivetrain systems.
 - B. Discuss Tires and Brake system components, safety precautions, maintenance and problems associated with brake systems.

Quiz: Drivetrain and Brake Systems

WEEK 6:

- Day 1:**
- A. Discuss suspension and steering system components, safety precautions, maintenance and problems associated with these systems.
 - B. Demonstrate how to dismount/mount and balance a tire.

- Day 2:**
- A. Discuss the importance of regular vehicle maintenance.
 - B. Discuss types of maintenance (daily, weekly, mileage interval, etc).
 - C. Complete Worksheet 11-2

WEEK 7:

- Day 1:**
- A. Discuss and demonstrate Scan Tool – Hook Up and Operation

- Day 2:**
- A. Class field trip to a Dealership/Automotive repair facility (To be determined)
 - B. **ALL MUST ATTEND!!!!**

*******Assign Dealership Field Trip Paper*******

WEEK 8:

- Day 1:**
- A. Discuss jobs in the automotive industry. *We will have an automotive industry guest speaker (If available)*
 - B. Discuss ASE certification Handout: “ASE Registration Booklet”
 - C. Discuss customer relations and expectations

- Day 2:**
- A. Clean up shop and classroom
 - B. Make-up day for tests and all outstanding work
 - C. Final Grades



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STUDENT GRADE POINT AVERAGE

Students will be graded according to the following grade point system.

Grade	Point Value	Description
A	4	Excellent
B	3	Very Good
C	2	Satisfactory
D	1	Poor
F	0	Failing
The following grades will not be used in computing the grade point average.		
I = Incomplete		W = Withdrawal
S = Satisfactory		U = Unsatisfactory
AUD = Audit		N = Never Attended
X = Credit by Examination		

- **Since this course is preparatory to entering the automotive service industry, job attitude, neatness, promptness and care of equipment will be considered part of the final grade. The final grade on these items will be determined by the instructor and based upon accepted industry standards.**

GRADING

- FOR A GRADE OF "A":**
 - Complete all written tests with an average of 93% to 100%.
 - Attend 90% of all scheduled class/lab hours.
 - Complete all lab/shop work in a manner as would be determined EXCELLENT in an actual shop.
- FOR A GRADE OF "B":**
 - Complete all written test with an average of 85% to 92%.
 - Attend 85% of all scheduled class/lab hours.
 - Complete all lab/shop work in a manner as would be determined VERY GOOD in an actual shop.
- FOR A GRADE OF "C":**
 - Complete all written tests with an average of 77% to 84%.
 - Attend 80% of scheduled class/lab hours.
 - Complete all lab/shop work in a manner as would be determined SATISFACTORY in an actual repair shop.
- FOR A GRADE OF "D":**
 - Complete all written tests with an average of 70% to 76%.
 - Attend 80% of all scheduled class/lab hours.
 - Complete all lab/shop work in a manner as would be determined POOR in an actual repair shop.



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Automotive Department Student Dress Code Effective August 2005

All automotive students will have and wear safety glasses at all times in shop or lab areas. Failure to adhere to safety glasses rules may result in disciplinary action.

1. All students are required to wear their dealer sponsored uniform to school each day. If a student has not been sponsored by a dealer, the student may purchase approved CPCC shirts from the school store. All shirts must be clean and tucked in. Rips and tears must be mended in a timely manner.
2. Dark colored work-style pants are recommended or Proper fitting jeans that meet the following requirements (length above the shoes, jeans above the hip with belt). No oversized jeans will be permitted. **Shorts are not allowed.** Rips and tears must be mended in a timely manner.
3. Facial jewelry of any type is **NOT** permitted. This includes ear, nose, lip, eyebrow, and cheek rings and/or studs. We also suggest that you refrain from wearing necklaces, rings, or bracelets of any kind as these items may pose a safety hazard.
4. All belts will be of the type that does not have an exposed buckle. No keys, chains or wallets hanging out of pockets.
5. Hats are permitted in the shop area only! If a hat has a brim, it must be worn with it facing forward.
6. Students must wear leather work boots or shoes with steel toes. We highly recommend oil resistant soles. No sneakers, tennis shoes, open toed shoes, or dress shoes are permitted.
7. Other appearance issues not directly covered by these rules will be considered on a case-by-case basis. CPCC staff will decide what is professional in appearance and what is not.

Any Student Not Following These Guidelines Will Be Dismissed From Class And Attendance Credit For That Day Will Not Be Given. No Excuses Will Be Considered.

- Students will bring tools required for class with them at class time.
 - **No Tools, No Lab Credit.**
- **Remember how you act and present yourself will reflect on the department and presentations to prospective employers.**



Automotive Department Student Guidelines / Expectations

- No tobacco products usage is allowed inside any college building at any time.
- Eating or drinking in classrooms is with permission of instructor only; **there will be no eating or drinking in shop or lab or lab areas.**
- Students are expected to be in class on time and will be held responsible for any information covered by instructor, even if late or absent. Tests and quizzes missed may be made up only with instructor permission.
- Missed or late assignments will affect student's course grade.
- Tardiness is a problem; any student who is over 15 minutes late for a class will be counted as absent. CPCC attendance policy is in the on line student handbook.
- Students are expected to conduct themselves in a mature manner at all times. Students caught cheating, fighting, stealing, spinning tires, vandalizing or purposely damaging a vehicle or equipment will be **EXPELLED** from the automotive program. Care should be shown to college vehicles and property.
- Leaving class or shop/lab early without instructor permission will not be tolerated.
- Students are expected to come prepared for class. This means with paper, textbook, pens, pencils or other required material.
- Cell phones and pagers must be turned off during all class or lab times. Cell phones may only be used outside of the automotive buildings. Cell phones which ring during class will be subject to forfeiture or may result in student loss of privilege.
- The area in front of the main lab is not a parking area for students. The laneway must remain open for emergency vehicles. Vehicles inappropriately parked will be ticketed and towed. No parking means No Parking.
- All students are expected to clean up and put away all tools and equipment used during class or lab before leaving. Housekeeping is very important and will be part of your grade.
- Whenever you are unsure about anything ask your instructor! It is your responsibility to make sure that no physical damage occurs to any vehicle that you are working on or driving. Students are responsible for their actions!
- **Safety glasses** and student tools are mandatory in all shop/lab areas, no exceptions.
- All vehicles brought into the main lab will have a CPCC work order filled out and visible on windshield.



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Automotive Technology, Tool List

Safety Glasses or Goggles Mandatory in Labs

- Toolbox
- Common slotted screwdrivers, 4"x3/16, 6"x1/4, 8"x1/4
- Phillips screwdrivers number 1 and number 2
- Torx bit set T10 to T60
- Standard combination wrench set 5/16 to 1 1/4"
- Metric combination wrench set 6mm to 22mm
- 16 oz ball peen hammer
- 6" needle nose pliers
- Regular slip joint pliers
- 10 or 12" Channel Lock pliers
- 6 or 7" side cutting pliers
- Set of punches and chisels
- Feeler gauge set
- 3/8" drive socket set, including ratchet, extensions, standard and metric sockets,
 - 3/8 to 7/8 and 8mm to 17mm
- 3/8" to 1/2" socket adapter, 1/2" to 3/8" socket adapter
- 1/2" drive socket set with extensions and ratchet,
- 1/2" drive flex handle at least 18" long (breaker bar)
- 1/2" drive sockets, 7/16 to 1 1/4 and 10mm to 22mm
- 1/2" inch drive torque wrench
- Spark plug sockets 5/8" and 13/16" 3/8" drive
- Gasket scraper
- Set of Allen wrenches
- 12-volt test light
- 1/4" drive socket set, standard and metric sockets, including ratchet
- Non-sparking drift punch, brass or aluminum
- Digital Volt, Ohm and Ammeter DVOM, with Leads Example Fluke model 83

You may wish to purchase additional tools for the specific program you are enrolled in such as ASEP, BMW, T-TEN, CAP. Check with your instructor for a list.



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Automotive Technology Safety Regulations

An Instructor must be present any time a class or session is working in the lab

Use of safety glasses is required/mandatory in lab areas.

- Any safety hazard will be reported to the instructor immediately. Floor will be kept clear of all liquids and tripping hazards.
- No equipment will be operated by students until they have received instruction on proper and safe operation of same equipment.
- Vehicle lifts must be secured with mechanical locks prior to working under vehicle
- Jack stands will be used when jacking up a vehicle for service.
- Brake asbestos "dust" will be controlled any time work is done which could lead to asbestos exposure.
- Floor exhaust system will be used anytime an engine is running in the lab.
- Use of tobacco is not permitted in any lab or classroom.
- Use of audio equipment is not permitted during class/lab hours.
- Students and faculty must follow OSHA rules concerning exposure to blood borne diseases.
- Proper disposal of automotive waste products, including hazardous wastes, is required.