CENTRAL PIEDMONT COMMUNITY COLLEGE

Course Syllabus
AUT 110-61
Introduction to Automotive Technology
(HS) General Curriculum

Syllabus Contents:

- **Course Description**
- **Course Objectives**
- **Weekly Outline**
- **Student Evaluation**
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Time Requirements:

- **16 Weeks (8/15/2012 Thru 12/11/2012)**
- **2 Class Hours/ Week**
- **2Lab Hours/ Week**
- **3 Semester Hours Credit**

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Office hours: By appointment

AUT 110-61
Introduction to Automotive Technology
(HS) 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 110-61
Introduction to Automotive Technology
(HS) 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 110-61
INTRODUCTION TO AUTOMOTIVE TECHNOLOGY
(HS) General Curriculum
Required Text: Introduction to Automotive Service
By: James Halderman and Darrell Deeter. Copyright. 2013

WEEK 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.
D. **Read Chapters 2, 3, 4, and 5.**

WEEK 2: A. Discuss Chapters 2,3,4,5.
B. 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)
C. **Read Chapters 6 and 7.**

Quiz: On Chapters 2,3,4,5

WEEK 3: A. Video: "Shop Safety"
B. Discuss Chapters 6 and 7
C. Discuss general shop safety and fire extinguishers
D. Discuss Material Safety Data Sheets (MSDS) Location and Right to Know Laws
E. Discuss fire extinguisher usage and location (Shop tour)
F. **Read Chapters 9 & 10.**

Quiz: On Chapters 6 & 7

WEEK 4: A. Video: "Hand Tool Safety in the Workplace"
B. Discuss Chapters 9 &10
C. Discuss general tool safety, Discuss tools and equipment used at CPCC
D. **Read Chapter 18.**

Quiz: On Chapters 9 & 10

WEEK 5: A. Video: "Lifting It Right"
B. Discuss Chapter 18
C. Discuss shop lifting equipment/procedures for raising vehicles
D. **Read Chapters 12 & 13.**

Quiz: on Chapter 18

WEEK 6: A. Discuss Vehicle identification numbering and locations, Discuss All types of service information including "How to Find" information in service manuals, (paper and CD-ROM types), Owner's Manuals, and TSB's
B. Discuss Chapters 12 & 13.
C. **Read Chapter 17.**

Quiz: On Chapters 12 & 13

WEEK 7: A. Discuss the importance of a complete Under-Hood inspection.
B. Discuss Chapter 17
C. **Read Chapters 14, 15, & 32.**

Quiz; on Chapter 17

WEEK 8: A. Discuss basic Gasoline and Diesel engine design/components along with basic emission control devices.
B. Discuss Chapters 14, 15, & 32.
C. Read Chapters 16 & 19

Quiz: On Chapters 14, 15, & 32

WEEK 9: A. Discuss lube and cooling systems components.
B. Discuss Chapters 16 & 19
C. Discuss routine lube / cooling system maintenance and related problems.
D. Demonstrate a proper oil change.
E. Read Chapters 22, 23, & 30,

Quiz: On Chapters 16 & 19

WEEK 10: A. Discuss Starting and Charging system components, Ignition System components, and Circuit Testers/ Digital Meters.
B. Discuss Chapters 22, 23, & 30
C. Discuss safety precautions, maintenance and problems associated with electrical systems.
D. Read Chapters 28, 31, & 33

Quiz: On Chapters 22, 23, & 30

WEEK 11: A. Discuss Fuel system components, Alternative Fuel and Hybrid Electric Vehicles.
B. Discuss Chapters 28, 31, & 33
C. Discuss safety precautions, maintenance and problems associated with fuel systems.
D. Read Chapters 35& 37

Quiz: on Chapters 28, 31, & 33

WEEK 12: A. Discuss Suspension and Steering system components, and Wheels and Tires
B. Discuss Chapters 35 & 37
C. Discuss safety precautions, maintenance and problems associated with these systems.
D. Demonstrate how to dismount/mount and balance a tire.
E. Read Chapter 36

Quiz: On Chapters 35 & 37

WEEK 13: A. Discuss Brake system components and Antilock Braking systems.
B. Discuss Chapter 36
C. Discuss safety precautions, maintenance and problems associated with these systems.
D. Read Chapter 29 &34

Quiz: On Chapter 36

WEEK 14: A. Discuss and demonstrate proper Scan Tool hook-up/ operation and Computers and Sensors found in modern vehicles.
B. Discuss Chapters 29 & 34
C. Read Chapters 26 & 40

Quiz: On Chapters 29 & 34

WEEK 15: A. Discuss Safety Belts and Airbag systems.
B. Discuss Used Vehicle and Pre-Delivery Inspection.
C. Discuss Chapters 26 & 40.
D. Discuss safety precautions, maintenance and problems associated with Safety Belt and Airbag systems.

Quiz; On Chapters 26 & 40

WEEK 16: A. Clean up shop and classroom
B. Make-up day for tests and all outstanding work
C. Final Grades

CENTRAL PIEDMONT COMMUNITY COLLEGE

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

1. **FOR A GRADE OF "A":**

a. Complete all written tests with an average of 93% to 100%.
b. Attend 90% of all scheduled class/lab hours.
c. Complete all lab/shop work in a manner as would be determined EXCELLENT in an actual shop.

2. **FOR A GRADE OF "B":**

a. Complete all written test with an average of 85% to 92%.
b. Attend 85% of all scheduled class/lab hours.
c. Complete all lab/shop work in a manner as would be determined VERY GOOD in an actual shop.

3. **FOR A GRADE OF "C":**

a. Complete all written tests with an average of 77% to 84%.
b. Attend 80% of scheduled class/lab hours.
c. Complete all lab/shop work in a manner as would be determined SATISFACTORY in an actual repair shop.

4. **FOR A GRADE OF "D":**

a. Complete all written tests with an average of 70% to 76%.
b. Attend 80% of all scheduled class/lab hours.
c. Complete all lab/shop work in a manner as would be determined POOR in an actual repair shop.

CENTRAL PIEDMONT COMMUNITY COLLEGE

Transport Systems Technology - Rules and Regulations

Year- Semester: 2012 Fall

Class Name: Introduction to Auto Tech.

Class Number- Section: AUT-110-61 General Curriculum

Instructor: James Viehmann

As a participant in the Transport Systems Technology division of CPCC, my classes include participation in hands-on activities in a lab setting. These labs can be in a large shop or small lab facility. In order to protect myself and others from harm, I agree to participate in those labs in a safe and professional manner.

Dress/Appearance/Hygiene

1. ***Safety Glasses:*** I agree to wear approved, non-tinted Safety Glasses at all times while in the lab.

   "At all times" means from the moment I enter the lab until I leave. This includes any time working, not working, referencing a computer, washing hands, etc. If I am found to not be wearing my safety glasses appropriately (covering my eyes), I agree to the following consequences:

   a. First offense – Verbal warning from the instructor
   b. Second offense – I will be excluded from that lab for the remainder of the lab
   c. Third offense – I will be excluded from that lab for the remainder of the lab and my grade will be reduced
   d. Any offenses while underneath a vehicle – skip automatically to the next highest penalty. There are no verbal warnings; exclusion for the day is automatic and a second occurrence will affect my grade

I understand that there are no exceptions from the above penalties. *In addition, warnings and exclusions can and will be made by any member of the CPCC faculty, staff, lab facilitators, Division Director, etc., and carry the same weight.*

2. ***Dress:*** All students are required to wear their dealer sponsored uniform to school each day. All shirts must be clean and tucked in. 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. No keys, chains or wallets hanging out of pockets. Rips and tears must be mended in a timely manner. All belts must be of the type that does not have an exposed buckle, or buckle turned to side of body.
3. ***Shoes****:* Students must wear leather work boots/shoes. We highly recommend steel toes and oil resistant soles. No sneakers, tennis shoes, open toed shoes, or dress shoes are permitted.
4. ***Jewelry:*** Facial jewelry of any type is NOT permitted. This includes ear, nose, lip, eyebrow, cheek rings, studs, etc. Also prohibited are necklaces, rings (only one wedding ring permitted), or bracelets of any kind as these items may pose a safety hazard. It is strongly recommended that you not wear a wristwatch.
5. ***Hats:*** Hats are permitted in the shop area only! If a hat has a bill, it must be worn with it facing forward. (skullies or beanies are not permitted)
6. ***Hair:*** Hair that is below the collar must be pulled back appropriately. Facial hair must be well groomed and not constitute a safety hazard.
7. ***Hygiene:*** Good personal hygiene must be maintained at all times.

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.

Attendance

8. ***Attendance:*** All Students are required to be on time. Students are expected to discuss tardiness with the instructor after class. *Students that do not attend 80% of the classes will automatically receive a failing grade.*

9. ***Illness-Emergency Reporting Procedures:*** All students must notify the Instructor whenever he/she will be absent and state the reason for the absence. If the Instructor cannot be reached, leave a voice mail or e-mail. If no message is received from the student, this will constitute an absence. *A MESSAGE MUST BE RECEIVED.*

10. ***Tardiness:*** Tardiness in any manner will not be tolerated. Students are expected to be in class on time both in the morning and after lunch. Class begins at exactly the scheduled time. *Three unexcused tardies will result in lowering of one grade level.*

Six or more excused tardies will result in lowering by one grade level and /or penalty to be determined by the instructor.

Participation/Behavior

11. ***Participation:*** Students are to participate in all areas of instruction to the fullest extent of their ability.
12. ***Disrespectful Behavior:*** Talking, whispering, sleeping, laying your head on the desk, passing notes, etc. while the instructor is teaching is disrespectful behavior and will not be tolerated. *One warning will be given; a second violation will result in immediate dismissal from the class; third violation will result in dismissal from the program.*
13. ***Instructors/Staff/Guests:*** All persons must be treated with full courtesy and respect. Students, during any association with the instructional staff and/or guests, shall refer to them as "Sir" or "Ma'am" as the case may be. Students are expected to sit straight in their seats and give instructors their undivided attention while in class.
14. ***Language:*** Profanity of any kind will not be tolerated.
15. ***Cheating:*** Cheating in any manner WILL NOT be tolerated. Any student caught cheating or allowing or assisting in cheating, will be immediately dismissed from the program by the Instructor.
16. ***Cell Phones:*** Pagers, cell phones, or other electronic devices are not to be used in class. NO EXCEPTIONS!!
17. ***Food/Tobacco/Alcohol/Drugs/Medications:***

- Smoking or use of *any tobacco* products are not permitted on campus.
- The unlawful manufacture, distribution, dispensation, possession, or use of illegal drugs presents a hazard to students, employees, and property and is not permitted at any property in use by the College or while participating in a co-op. Any student who violates this policy is subject to disciplinary action. Refer to CPCC's Policy and Procedures No.7.01 at http://www.cpcc.edu/administration/policies-and-procedures/7-01-drug-free-college for complete details.
- NO FOOD OR DRINK (EXCEPT BOTTELD WATER) IS ALLOWED IN THE LAB AT ANY TIME. You may eat and drink only in the break areas or outside. Food and drink in the classroom is at the instructor's discretion.
- No alcohol is permitted on campus. If this occurs it will result in immediate dismissal from the program.

- No student is to be on campus under the influence of alcohol or with the odor of alcohol on or about them.

18. ***Breaks****:* Students are not permitted to gather in the hallways or other areas of the building. During breaks students are allowed in the break areas, restrooms, or outside. Students are not to block walkways or doorways.
19. ***Vehicles:*** All vehicles brought into the main lab will have a CPCC work order filled out and visible on windshield.

Refer to **"CPCC Student Code of Conduct and Disciplinary Procedures"** and/or **CPCC's Policies and Procedures at** http://www.cpcc.edu/administration/policies-and-procedures/7-students for the College's expectations of its students.

Any student not following these guidelines will be dismissed from class and attendance credit for that day will not be given. After a student has been warned or dismissed from class three times he or she will be dropped from the program.

No excuses will be considered.

By signing this form I am attesting to the fact that I have read or had read to me and I understand all of the Rules and Regulations of Central Piedmont Community College's Transport Systems Technology program. By affixing my signature to this form I am also agreeing to abide by each and every rule. I understand that any and all violations of these rules will be made part of my record and that any violation could result in termination from this program.

Student Name (Print) _____

Date_____

Student ID#_____

Student Signature_____

CENTRAL PIEDMONT COMMUNITY COLLEGE

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 1/14 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, Honda PACT 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.