

Course Outline of Record

1. Course Code: AUTO-010
2.
 - a. Long Course Title: Introduction To Automotive Technology
 - b. Short Course Title: INTRO AUTO TECH
3.
 - a. Catalog Course Description:

This course provides an overview of the major components and systems found on modern automobiles. The course includes: an overview of the automotive industry, shop safety, hand tools usage, basic theory of major automobile systems and basic vehicle maintenance and service.
 - b. Class Schedule Course Description:

This class provides an overview of automotive theory and service procedures including lecture/discussion and hands-on experience understanding and servicing fundamental automotive components and systems.
 - c. Semester Cycle (if applicable): Every semester
 - d. Name of Approved Program(s):
 - AUTOMOTIVE ALTERNATIVE FUELS Certificate of Achievement
 - AUTOMOTIVE ELECTRICAL Certificate of Achievement
 - AUTOMOTIVE ENGINE MANAGEMENT Certificate of Achievement
 - AUTOMOTIVE TRANSMISSION & AXLE Certificate of Achievement
4. Total Units: 4.00 Total Semester Hrs: 108.00
 Lecture Units: 3 Semester Lecture Hrs: 54.00
 Lab Units: 1 Semester Lab Hrs: 54.00
 Class Size Maximum: 26 Allow Audit: Yes
 Repeatability No Repeats Allowed
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:

Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)

 Advisory: RDG 061
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
 - a. Hadfield, Chris (2015). Basic Auto Service & Systems. Classroom & Shop Manual. (5th/e). Cengage Learning. ISBN: 9781285442297
 College Level: Yes
 Flesch-Kincaid reading level: 13
7. Entrance Skills: *Before entering the course students must be able:*
 - a.

Use various reading strategies to prepare, read and comprehend expository text

 - RDG 061 - Use SQ3R &/or SOAR along with outlining, note-taking, mapping summarizing and other strategies to prepare, read, & comprehend expository text.
 - b.

Read a variety of texts fluently.

 - RDG 061 - Read a variety of texts fluently.
 - c.

Write organized summaries & reactions that capture main idea and supporting details.

 - RDG 061 - Write organized summaries & reactions that capture main idea and supporting details.

d.
Understand multiple word meanings, uses & synonyms

- RDG 061 - Understand multiple word meanings, uses & synonyms

8. Course Content and Scope:

Lecture:

1. Orientation, vehicle service information
2. Introduction to the automobile industry
3. Shop safety and environmental protection
4. Fasteners and gaskets
5. Tools and shop equipment
6. Service data
7. Engine overview: operation, construction, lubrication, cooling, exhaust
8. Fuel and ignition systems overview
9. Electrical system overview
10. Emission control system overview
11. Transmission overview
12. Braking system overview
13. Steering and suspension system overview
14. Air conditioning and heating systems
15. Preventative maintenance
16. Chrysler web-based training modules

Lab: *(if the "Lab Hours" is greater than zero this is required)*

Demonstrate understanding of the following practices and systems through a series of hands-on activities:

1. Properly complete repair order including research of various service information, TSBs, and time studies, as well as explaining the repair order to a customer.
2. Shop safety & environmental protection: instructor led demonstrations, demonstration of proficiency with lifting a vehicle, proper handling of spills, properly disposing of waste oils, proper use of tools and equipment.
3. Fasteners and gaskets: demonstration of proper torque and gasket prep with servicing tires and wheels as well as oil changes.
4. Identification of general operating systems.
5. Engine overview: identify various engine systems and describe the function and operation of key engine related parts.
6. Fuel and ignition systems overview: read codes using scan tool. Perform maintenance of filters, PCV valve and spark plugs.
7. Electrical system overview: test battery. Perform basic maintenance of belts and cables. Remove and replace battery.
8. Emission control system overview: identify major emission system components and their function and operation. Perform basic maintenance.
9. Transmission overview: perform basic inspection, check and fill fluids; observe typical transmission service as demonstrated by instructor.
10. Braking system overview: perform brake system inspection; service and light repair.
11. Steering and suspension system overview: inspect system for damaged or worn parts. Perform maintenance and service of wearable components.
12. Basic to intermediate preventative maintenance.

9. Course Student Learning Outcomes:

1. Demonstrate knowledge of shop safety.
- 2.

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Demonstrate understanding of fundamental vehicle systems.

3.

Perform a detailed vehicle inspection and note required basic vehicle services required.

4.

Display teamwork.

5.

Properly complete a vehicle repair order.

6.

Research basic vehicle service information.

7.

Identify and utilize basic service hand tools and equipment.

10. Course Objectives: *Upon completion of this course, students will be able to:*

Upon satisfactory completion of the course, in a timely manner to industry standards, students will be able to:

b. Describe shop safety practices and proper procedures regarding handling hazardous material.

c. Identify basic automotive tools and equipment.

d. Perform a chassis lubrication, and change oil and filter.

e. Demonstrate tire rotation.

f. Locate applicable vehicle service specifications and procedures using the latest online service information.

g. Inspect disc and drum brakes.

h. Properly complete a repair order including all pertinent information and compliant, cause and correction.

i. Properly position and lift a vehicle using a floor jack and jack stands and a vehicle hoist.

j. Identify and describe the purpose of the following components and systems: engine, transmission, suspension, braking system, fuel system, ignition system, electrical system and steering system.

k. Describe the 5-step troubleshooting process.

l. Perform a detailed vehicle inspection.

m. Verify proper fill and type for all fluids on the automobile.

n. Properly connect a digital multimeter and read volts, amps and ohms on a basic electrical circuit.

o. Properly prepare a vehicle for service.

p. Maintain a clean working environment.

q. Perform a compression test.

r. Locate and interpret key vehicle identification information.

s. Test drive a vehicle to verify the concern and the repair.

t. Display team work.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*

a. Collaborative/Team

b. Discussion

c. Distance Education

d. Laboratory

e. Lecture

f. Observation

g. Technology-based instruction

Other Methods:

Reading assignments

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*

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In Class Hours: 108.00

Outside Class Hours: 108.00

a. In-class Assignments

1. Review homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
2. Begin 3 SP2 safety tests.
3. Notes on lecture.
4. Participation in discussion related to topic of lecture.
5. Students must keep a notebook of all course materials including homework, class notes, handouts, class project and team activities. The notebook must be organized by chapter, in-class notes, handouts and extra-credit assignments. The notebook will be evaluated after the half way point and graded at the end of the course.
6. Review and discuss vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
7. Must develop teamwork skills through classroom interaction and discussion.

b. Out-of-class Assignments

1. Readings from required text: 1-3 chapters per week from both classroom and shop manuals.
2. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
3. Completion of 3 SP2 safety tests.
4. Assigned readings and written summaries from selected instructor handouts.
5. Written summaries and analysis of assigned websites.
6. Must complete a course project consisting of an essay describing, analyzing and summarizing a selected topic, including out of class research and fieldwork.
7. Students must keep a notebook of all course materials including homework, class notes, handouts, class project and team activities. The notebook must be organized by chapter, in-class notes, handouts and extra-credit assignments. The notebook will be evaluated after the half way point and graded at the end of the course.
8. Vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
9. Hands-on lab worksheets matching each course objective. These will be graded by the instructor throughout the semester during lab time.
10. Must develop teamwork skills through lab activities and assigned special projects.
11. Chrysler web-based training modules.

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- College level or pre-collegiate essays
- Written homework
- Laboratory projects
- Presentations/student demonstration observations
- Group activity participation/observation
- True/false/multiple choice examinations
- Mid-term and final evaluations
- Student participation/contribution
- Behavior assessment

14. Methods of Evaluating: Additional Assessment Information:

Review of homework Lab activity evaluations Written and hands-on exams

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO - Career and Technical Education

- Apply critical thinking skills to execute daily duties in their area of employment.
- Apply critical thinking skills to research, evaluate, analyze, and synthesize information.
- Display the skills and aptitude necessary to pass certification exams in their field.
- Exhibit effective written, oral communication and interpersonal skills.

PO-BS Problem Solving

- Recognize the importance of checking a proposed solution to verify that it satisfies the requirements of a problem.
- Recognize that a solution may not be possible, given limits of time, money, or other finite resources.
- Identify what isn't known, but needs to be known in order to solve a problem (depending on the problem domain, reading and/or mathematical skills are helpful).

IO - Critical Thinking and Communication

- Summarize, analyze, and interpret oral and written texts, with the ability to identify assumptions and differentiate fact from opinion.
- Utilizing various communication modalities, display creative expression, original thinking, and symbolic discourse.

IO - Global Citizenship - Ethical Behavior

- Apply ethical reasoning to contemporary issues and moral dilemmas.
- Exhibit respect for self and others.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

- 1. Safety glasses meeting ANSI Z87.1
- 2. Three ring binder

18. Materials Fees: Required Material?

Material or Item	Cost Per Unit	Total Cost
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19. Provide Reasons for the Substantial Modifications or New Course:

Change advisory and entrance skills to Reading 061.

- 20. a. Cross-Listed Course (*Enter Course Code*): *N/A*
- b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

- a. Course Control Number [CB00]: CCC000455016
- b. T.O.P. Code [CB03]: 94800.00 - Automotive Technology
- c. Credit Status [CB04]: D - Credit - Degree Applicable
- d. Course Transfer Status [CB05]: B = Transfer CSU
- e. Basic Skills Status [CB08]: 2N = Not basic skills course
- f. Vocational Status [CB09]: Clearly Occupational
- g. Course Classification [CB11]: Y - Credit Course
- h. Special Class Status [CB13]: N - Not Special
- i. Course CAN Code [CB14]: *N/A*

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j. Course Prior to College Level [CB21]: Y = Not Applicable

k. Course Noncredit Category [CB22]: Y - Not Applicable

l. Funding Agency Category [CB23]: Y = Not Applicable

m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (if program-applicable): AUTOMOTIVE ALTERNATIVE FUELS,AUTOMOTIVE ELECTRICAL,AUTOMOTIVE ENGINE MANAGEMENT,AUTOMOTIVE TRANSMISSION & AXLE

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 26

Third Year: 26

24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: N/A

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (Explain:)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Douglas Hugh Redman Origination Date 11/09/17