COLLEGE OF THE DESERT

Course Code AUTO-093D

Course Outline of Record

1. Course Code: AUTO-093D
2. a. Long Course Title: Diesel Diagnostics and Troubleshooting
   b. Short Course Title: DIESEL DIAG/TRBLSHOT
3. a. Catalog Course Description:
   This course provides an overview of root cause analysis and its application as relevant to light and medium duty diesel systems diagnosis and troubleshooting. The focus is on fuel delivery, air induction, emissions, electrical and drivability diagnosis. The coursework will include scenario based diagnosis and cold circuit analysis. This course will help anyone interested in developing an effective, logical approach to diesel systems diagnosis and troubleshooting.
   b. Class Schedule Course Description:
   This course provides an overview of root cause analysis and its application as relevant to diesel systems diagnosis and troubleshooting.
   c. Semester Cycle (*if applicable*): *N/A*
   d. Name of Approved Program(s):
   - AUTOMOTIVE TECHNOLOGY AS Degree for Employment Preparation
4. Total Units: 2.00 Total Semester Hrs: 36.00
   Lecture Units: 2 Semester Lecture Hrs: 36.00
   Lab Units: 0 Semester Lab Hrs: 0
   Class Size Maximum: 21 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: AUTO 093C
6. Textbooks, Required Reading or Software: *(List in APA or MLA format.)*
   a. Denton, Tom (2016). *Advanced Automotive Fault Diagnosis* (4/e). Routledge. ISBN: 978-041572576
   College Level: Yes
   Flesch-Kincaid reading level: *N/A*
7. Entrance Skills: *Before entering the course students must be able:*

Advisory skills:

a.
Understanding key diesel systems operation and function.

- AUTO 093C - Differentiate diesel fuel injection systems.

b.
Describe the basic diagnostic process.

- AUTO 093C - Evaluate 5 step diagnostic procedures.

c.
Describe common diesel systems malfunctions.

- AUTO 093C - Categorize drivability concerns.

8. Course Content and Scope:

Lecture:

1. Why study diagnosis & troubleshooting?
2. Why Root Cause Analysis?
3. Problem solving tools.
4. Importance of subject knowledge.
5. 5-Step troubleshooting process.
6. Proper inspection of diesel systems.
7. Service information and TSBs.
8. Diesel systems troubleshooting scenarios.
9. Electrical schematic diagnosis.
10. Electrical circuit service and repair.

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

9. Course Student Learning Outcomes:
   1. Given a true-to-life scenario describe normal operation and function of key diesel systems.
   2. Given a true-to-like scenario of a diesel system malfunction, list possible causes using the five step diagnosis process.
   3. Given a true-to-live scenario of a diesel system malfunction, compile a list of tests to run and actions to take based of test results.

10. Course Objectives: *Upon completion of this course, students will be able to:*
    a. Explain each step of "Root Cause Analysis" process as it relates to diesel systems.
    b. Describe common mistakes technicians when following the 5-Step Troubleshooting Process.
    c. Properly summarize customer concern, related to diesel system malfunction.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*
    a. Discussion
    b. Distance Education
    c. Individualized Study
    d. Lecture
    e. Participation
    f. Role Playing
    g. Self-exploration
    h. Supplemental/External Activity
    i. Technology-based instruction

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*
    In Class Hours: 36.00

Outside Class Hours: 72.00

a. In-class Assignments

- Quizzes
- Exams
- Online class discussion
- Web-based research
- Analysis of customer interaction

b. Out-of-class Assignments

- Online class discussion
- Web-based research
- Analysis of customer interaction
- Homework from text

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*
    - Written homework
    - Self-paced testing
    - Self/peer assessment and portfolio evaluation
    - True/false/multiple choice examinations
    - Mid-term and final evaluations
    - Student participation/contribution
    - Student preparation

14. Methods of Evaluating: Additional Assessment Information:

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

PO - Career and Technical Education

Fulfill the requirements for an entry- level position in their field.
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.

IO - Personal and Professional Development

Self-evaluate knowledge, skills, and abilities.
Develop realistic goals.
Display habits of intellectual exploration, personal responsibility, and physical well being.
Demonstrate an understanding of ethical issues to make sound judgments and decisions.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year

17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: ☐ Required Material?

Material or Item	Cost Per Unit	Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:

2-year periodic review

20. a. Cross-Listed Course *(Enter Course Code)*: AUTO-093D
    b. Replacement Course *(Enter original Course Code)*: AUTO-093D

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

22. MIS Course Data Elements
    a. Course Control Number [CB00]: CCC000567624
    b. T.O.P. Code [CB03]: 94800.00 - Automotive Technology
    c. Credit Status [CB04]: D - Credit - Degree Applicable
    d. Course Transfer Status [CB05]: C = Non-Transferable
    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*
    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 TECHNOLOGY
    Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment
    First Year: 14
    Third Year: 21

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 Dorothy Anderson Origination Date 02/08/17