

AUTO 093D: DIESEL DIAGNOSTICS & TROUBLESHOOTING

Originator

dredman

Co-Contributor(s)**Name(s)**

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Justification / Rationale

The Automotive Faculty are reviewing and/or updating this course to assure compliance with local, State, and Federal regulations; support consistency within the curriculum; practice relevance regarding automotive industry and community; and to make improvements that will strengthen the learning environment this course creates thus benefiting the learners.

Effective Term

Fall 2022

Credit Status

Credit - Degree Applicable

Subject

AUTO - Automotive Technology

Course Number

093D

Full Course Title

Diesel Diagnostics & Troubleshooting

Short Title

DIESEL DIAG/TRBLSHOOT

Discipline**Disciplines List**

Automotive Technology

ModalityFace-to-Face
100% Online**Catalog 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.

Schedule Description

This course provides an overview of root cause analysis and its application as relevant to diesel systems diagnosis and troubleshooting. Prerequisite or corequisite: AUTO-093A

Lecture Units

2

Lecture Semester Hours

36

Lab Units

0

In-class Hours

36

Out-of-class Hours

72

Total Course Units

2

Total Semester Hours

108

Prerequisite Course(s)

Prerequisite or Corequisite: AUTO 093A

Required Text and Other Instructional Materials**Resource Type**

Book

Open Educational Resource

No

Author

Denton, Tom

Title

Advanced Automotive Fault Diagnosis

Edition

5th

City

New York

Publisher

Routledge

Year

2021

College Level

Yes

Flesch-Kincaid Level

11.4

ISBN #

978-0367330521

Class Size Maximum

21

Entrance Skills

1. Differentiate pertinent information for documentation.
2. Decipher importance of personal safety and shop safety.
3. Describe basic function and operation of key diesel systems.

Requisite Course Objectives

AUTO 093A-Differentiate pertinent information for documentation
AUTO 093A-Decipher importance of personal safety and shop safety
AUTO 093A-Describe basic function and operation of key diesel systems.

Course Content

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.

Course Objectives

Objectives	
Objective 1	Explain each step of "Root Cause Analysis" process as it relates to diesel systems.
Objective 2	Describe common mistakes technicians when following the 5-Step Troubleshooting Process.
Objective 3	Properly summarize customer concern, related to diesel system malfunction.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Given a true-to-life scenario describe normal operation and function of key diesel systems.
Outcome 2	Given a true-to-like scenario of a diesel system malfunction, list possible causes using the five step diagnosis process.
Outcome 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.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Discussion	Lecture and participation.
Technology-based instruction	Internet research.
Self-exploration	Research for homework and project.
Participation	Homework, projects, and role-play.
Lecture	Weekly discussions/lecture.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Based on text.	In and Out of Class
Student participation/contribution	Lecture/discussions/project.	In and Out of Class
Mid-term and final evaluations	Exams based on text and research.	In and Out of Class
Tests/Quizzes/Examinations	Tests based on text.	In and Out of Class

Assignments

Other In-class Assignments

- Analyze course material in order to successfully complete quizzes
- Analyze course material in order to successfully complete exams
- Evaluate online class discussion and create/respond to posts
- Synthesize web-based research for homework and exam use
- Analysis of customer interaction

Other Out-of-class Assignments

- Online class discussion (1hr per week)
- Web-based research (1hr per week)
- Analysis of customer interaction (1hr per week)
- Homework from text (2hrs per week)

Grade Methods

Letter Grade Only

Distance Education Checklist**Instructional Materials and Resources**

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?

Outside the LMS correspondence will only be through College email and Zoom.

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.

Interaction between instructor and learner will help to enhance learning and understanding of subject material.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Chat room/instant messaging
Discussion forums with substantive instructor participation
Online quizzes and examinations
Regular virtual office hours
Timely feedback and return of student work as specified in the syllabus
Weekly announcements

External to Course Management System:

Direct e-mail
Synchronous audio/video

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.

Regular effective contact will be practiced through online lecture, discussion board postings, email communications, regular announcements, prompt grading and feedback of assignments, and virtual office hours. This contact between the facilitator and learner on a regular basis will enhance learner confidence and understanding and promote critical thinking and analyzation of subject matter.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.

Interaction between instructor and learner will help to enhance learning and understanding of subject material.

Other Information

Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.

With the uncertainty of the teaching environment, enabling the lecture portion of this course to be delivered in an online setting, while keeping the hands-on portion face-to-face, will ensure learners can access needed training to ensure knowledge and experience is achieved to gain employment in the automotive field.

MIS Course Data**CIP Code**

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

TOP Code

094800 - Automotive Technology

SAM Code

C - Clearly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Transferable to CSU only

General Education Status

Y = Not applicable

Support Course Status

N = Course is not a support course

Allow Audit

Yes

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

3/17/2022

Academic Senate Approval Date

3/24/2022

Board of Trustees Approval Date

4/22/2022

Chancellor's Office Approval Date

5/08/2022

Course Control Number

CCC000631490

Programs referencing this courseAutomotive Air Conditioning Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=104>)Automotive Braking Systems Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=109>)Automotive Light and Medium Duty Diesel Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=111>)Automotive Steering, Suspension, Alignment Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=112>)Automotive Introductions Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=201>)Automotive Technology AS Degree (<http://catalog.collegeofthedesert.eduundefined/?key=57>)