

AUTO 093A: INTRO TO LIGHT & MEDIUM DUTY DIESEL SYSTEMS

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

093A

Full Course Title

Intro to Light & Medium Duty Diesel Systems

Short Title

INTRO TO DIESEL

Discipline**Disciplines List**

Automotive Technology

Modality

Face-to-Face

100% Online

Catalog Description

This course is designed as an introduction to light duty diesel systems. Students will explore the operation and function of the key systems related to compression ignition engines. Students will learn safety of a repair shop, vehicles, and of environmental impact. Students will gain knowledge of diesel engine design, engine oil types, correct application, diesel emission systems, and fuel delivery systems.

Schedule Description

This course is designed as an introduction to light duty diesel systems. Students will explore the operation and function of the key systems related to compression ignition engines.

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

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

Web/Other

Open Educational Resource

No

Year

2021

Description

Electude - <https://www.electude.com/>
https://cacollegeofthedesert.electude.com/bundlelist_0

Class Size Maximum

35

Course Content

- Job opportunities and certifications
- History of the diesel engine
 - Origin of the diesel engine
 - Applications of diesel engines
 - Gasoline/diesel configurations
 - Future
- Safety
 - Shop tools and repair tools
 - Shop safety
 - Vehicles safety
- Introduction:
 - 4-stroke
 - 2-stroke
- Diesel systems maintenance
- Lubrication System
 - Lubrication
 - Lubrication components
- Cooling system
 - Cooling
 - Cooling system components
- Diesel Fuel
- Introduction
- Characteristics
- Emissions systems

- Component Identification
- Service Precautions

Course Objectives

	Objectives
Objective 1	Recognize job opportunities offered for diesel engine repair.
Objective 2	Recognize certifications of diesel engine repair
Objective 3	Differentiate pertinent information for documentation
Objective 4	Ascertain environmental impact of diesel engines
Objective 5	Decipher importance of personal safety and shop safety
Objective 6	Deduce correct oil applications
Objective 7	Describe basic function and operation of key diesel systems.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Distinguish the importance of proper maintenance of light duty diesel engines is critical to proper operation.
Outcome 2	Deduce employment opportunities in the automotive field for light duty diesel technicians.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Technology-based instruction	Electude learning: Web-based, interactive modules. Each module includes chapter review and quizzes.
Supplemental/External Activity	Visit an automotive service and repair facility of their choice and write a report.
Self-exploration	Internet research covering a subject of choice.
Role Playing	Learners are required to participate in classroom discussions on a weekly basis.
Discussion	Participate in classroom discussions on a weekly basis.
Collaborative/Team	Learners are required to participate in classroom discussions on a weekly basis.
Participation	Participate in classroom discussions on a weekly basis.
Lecture	Weekly discussions.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
College level or pre-collegiate essays	Final paper may be assigned to evaluate learners	Out of Class Only
Student participation/contribution	Participate in classroom discussions on a weekly basis.	In and Out of Class
Mid-term and final evaluations	Electude learning: Web-based, interactive modules. Each module includes chapter review and quizzes.	In and Out of Class
Tests/Quizzes/Examinations	Electude learning: Web-based, Interactive modules. Each module includes chapter homework questions.	In and Out of Class
Term or research papers	Learners maybe assigned a research paper or a book report.	Out of Class Only
Written homework	Weekly modules assigned on a self-paced basis, with weekly completion.	In and Out of Class

Assignments

Other In-class Assignments

- Online class discussion: Student are required to participate in classroom discussions on a weekly basis. Responses between learners is required.

- Web-based research: Learners may be assigned a research paper or a book report pertaining to course content. (2hrs per week)
- Analysis of customer/shop interaction: Learners may be required to discuss observation made on visit to a shop.

Other Out-of-class Assignments

- Independent Research: Internet research pertaining to course material of their choice. (2hrs per week)
- Independent shop interviews: Information gathered during a shop visit will be used to complete class assignment. (1hr per week)
- Elective learning: 22 Web-based, interactive modules. Each module includes chapter review and quizzes. (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:

Discussion forums with substantive instructor participation
Online quizzes and examinations
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

CCC000631488

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>)