

AUTO 093C: ADVANCED LIGHT/MEDIUM DUTY SYSTEMS

Originator

jmagbuhat

Justification / Rationale

Remove material (uniform) fees.

Effective Term

Fall 2019

Credit Status

Credit - Degree Applicable

Subject

AUTO - Automotive Technology

Course Number

093C

Full Course Title

Advanced Light/Medium Duty Systems

Short Title

ADV DIESEL SYSTEMS

Discipline**Disciplines List**

Automotive Technology

Modality

Face-to-Face

Catalog Description

This course provides theory and hands-on experience in intermediate to advanced light/medium duty diesel system management including: fuel injection, electronic systems, emission controls, OBDII, as well as service and maintenance, diagnosis and repair of diesel system management malfunctions. The focus is then placed on advanced engine management components and systems including: computer inputs, outputs and control and OBDII logic with an emphasis on troubleshooting, diagnosis and repair of advanced diesel system management malfunctions. A uniform is required for this course.

Schedule Description

This course provides theory and hands-on experience in intermediate to advanced light/medium duty diesel management systems, with an emphasis on hands-on diagnosis and repair. A uniform is required for this course.

Prerequisite: AUTO 093B

Lecture Units

3

Lecture Semester Hours

54

Lab Units

1

Lab Semester Hours

54

In-class Hours

108

Out-of-class Hours

108

Total Course Units

4

Total Semester Hours

216

Prerequisite Course(s)

AUTO 093B

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

Book

Author

Sean Bennett

Title

Modern Diesel Technology

Edition

1

Publisher

Delmar

Year

2012

College Level

Yes

Flesch-Kincaid Level

13

ISBN #

978-1-435-48047-6

Resource Type

Web/Other

Description

Supplemental information provided by system manufacturers to aide in system service and diagnosing

For Text greater than five years old, list rationale:

This is the only Light/medium duty available as of now. I am on the list with our publishers to receive any updated Light/Medium duty diesel books.

Class Size Maximum

21

Entrance Skills

Complete a repair order

Prerequisite Course Objectives

AUTO 093B-Demonstrate proper completion of California regulated repair order complete with all information required by the state of California.

Entrance Skills

Analyze manufacturers service information related to diesel system malfunctions

Prerequisite Course Objectives

AUTO 093B-Analyze proper service information pertaining to vehicle service and repair.

Entrance Skills

Enhance diagnostic troubleshoot skills

Prerequisite Course Objectives

AUTO 093B-Formulate general diagnostic service applications.

Entrance Skills

Recognize key differences between gasoline systems and diesel system.

Prerequisite Course Objectives

AUTO 093B-Differentiate gasoline engine and diesel engine operation and construction.

Course Content

1. Safety practices and shop safety
2. Cooling systems components and function diagnosis and service
3. Lubricating systems function diagnosis and repair
4. Intake and Exhausts system function and service
5. Pump line nozzle (PLN) fuel injection system operation and repair
6. Electronically controlled injection systems service
7. Starting and charging system diagnosis and repair
8. Engine electronics and electrical systems
9. Emissions controls systems inspection and repair

Lab Content

1. Cooling system Testing
 - a. Component identification
 - b. Troubleshooting, Service & repair
2. Lubricating systems
 - a. Component identification
 - b. Troubleshooting, Service & repair
3. Intake and Exhausts
 - a. Component identification
 - b. Troubleshooting, Service & repair
4. Pump line nozzle (PLN) fuel injection systems
 - a. Component identification
 - b. Inspection, diagnosis & Troubleshooting
5. Electronically controlled injection systems
 - a. Component identification
 - b. Inspection, diagnosis & Troubleshooting
6. Engine electrical (Cranking – Charging)
 - a. Component identification
 - b. Troubleshooting, Service & repair
7. Emissions controls
 - a. Component identification
 - b. Troubleshooting, Service & repair

Course Objectives

Objectives	
Objective 1	Demonstrate safe practices in shop environment.
Objective 2	Diagnose and repair "Check Engine" light concerns.
Objective 3	Perform proper use of diagnostic equipment.
Objective 4	Categorize drivability concerns.
Objective 5	Diagnosis and troubleshoot intermediate to advanced level diesel system malfunction.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Students will demonstrate diagnosis of diesel system management malfunctions.
Outcome 2	Students will demonstrate proper repair of diagnosed malfunctions.
Outcome 3	Students will demonstrate routine service and maintenance of diesel systems.
Outcome 4	Student will demonstrate 5-step diagnosis procedure using manufacture service information.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Collaborative/Team	Student will work in a team setting while performing lab activities
Technology-based instruction	Diagnostic equipment based activities
Role Playing	Lab activities and student may participate in role play activities
Participation	Classroom and lab activities require critical thinking and diagnosis
Observation	Student may participate in role play activities and be required to do a visual presentation
Lecture	Classroom lectures
Laboratory	Lab activities
Discussion	Student will participate in classroom discussions
Demonstration, Repetition/Practice	Classroom and lab activities require critical thinking and diagnosis

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	Homework is assigned on a weekly basis to reflect course outline	Out of Class Only
Oral and practical examination	Student may participate in role play activities and be required to do a visual presentation	In and Out of Class
Self-paced testing, Student preparation	Students are requested to complete reading assignments prior to class	Out of Class Only
Student participation/contribution	Student will participate in classroom discussions	In Class Only
Tests/Quizzes/Examinations	Quizzes	In and Out of Class
Presentations/student demonstration observations	Student may participate in role play activities and be required to do a visual presentation	In and Out of Class
Laboratory projects	Lab assignments	In and Out of Class
Term or research papers	Students may be required to complete a research paper or book report	Out of Class Only

Assignments
Other In-class Assignments

Chapter book review
Quizzes
Exams

Research papers

Oral or written presentation

Other Out-of-class Assignments

Chapter book review questions

Chapter book reading

Role play

Quizzes

Exams

Dealer visit

Research papers

Oral or written presentation

Grade Methods

Letter Grade Only

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

Not transferable

Allow Audit

Yes

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

02/05/2019

Academic Senate Approval Date

02/14/2019

Board of Trustees Approval Date

03/15/2019

Chancellor's Office Approval Date

03/22/2019

Course Control Number

CCC000567625

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