

AUTO 340B: CNG MAINTENANCE & REPAIR

Originator

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

Anderson, Dorothy

Justification / Rationale

Add online modalities. We have had requests from Clean Cities Coalition and local industry partners to conduct online training.

Effective Term

Fall 2023

Credit Status

Noncredit

Subject

AUTO - Automotive Technology

Course Number

340B

Full Course Title

CNG Maintenance & Repair

Short Title

CNG MAINT & REPAIR

Discipline**Disciplines List**

Automotive Technology

Modality

Face-to-Face

100% Online

Hybrid

Catalog Description

This course provides classroom lecture/discussion and interactive training on compressed natural gas (CNG) maintenance and repair procedures. This class is targeting skills required to obtain an entry-level position working on CNG vehicles.

Schedule Description

This course provides classroom lecture/discussion and interactive training on compressed natural gas (CNG) maintenance and repair procedures. Prerequisite: AUTO 340

Total Non-Credit Contact Hours

36

Lecture Units

0

Lab Units

0

In-class Hours

18

Out-of-class Hours

18

Total Course Units

0

Total Semester Hours

36

Override Description

Noncredit courses do not have lecture and lab. The out of class hours were adjusted to provide the same total as the equivalent credit course.

Prerequisite Course(s)

AUTO 340

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

Web/Other

Description

Handouts provided by the instructor

Resource Type

Web/Other

Description

NFPA 52 Vehicular Fuel Systems Code, 2015 Edition

Class Size Maximum

21

Entrance Skills

List shop and vehicle safety practices relevant to compressed natural gas (CNG) vehicles.
Describe CNG components and describe their operation.

Requisite Course Objectives

AUTO 340-Upon successful completion of this course, students will be able to: List shop and vehicle safety practices relevant to compressed natural gas (CNG) vehicles.

AUTO 340-Upon successful completion of this course, students will be able to: describe CNG components and describe their operation.

Course Content

1. Review of CNG vehicle safety.
2. Compressed Natural Gas (CNG) maintenance procedures.
3. Compressed Natural Gas (CNG) repair procedures.

Course Objectives

	Objectives
Objective 1	Comply with shop and vehicle safety practices relevant to CNG vehicles.
Objective 2	Follow manufacturer's maintenance schedule to ensure fluids and lubricants are at proper levels and serviced with recommended products.
Objective 3	Perform a general visual inspection of the CNG fuel system.
Objective 4	Inspect air filters and fuel filter; service or replace as needed.
Objective 5	Perform common repairs on CNG vehicles.

Objective 6	Perform safe fueling procedures and determine fuel level.
Objective 7	Identify working pressures and demonstrate an understanding of fuel characteristics as they relate to temperature and fill procedures.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:

Outcome 1	Locate CNG vehicle maintenance and repair procedures from the service information and industry recognized literature such as National Fire Protection Agency (NFPA-52) and Compressed Gas Association (CGA-6.4).
Outcome 2	Demonstrate the ability to perform basic CNG vehicle maintenance and repair practices and procedures.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Collaborative/Team	Learner will work in a team setting while performing ASE tasks, researching information and group-based activities.
Technology-based instruction	Look up maintenance schedules in service information.
Observation	Learner will be observed in lab, group activities, information research, collaborative assignments, and other activities assigned.
Lecture	Each class is half lecture covering multiple aspects of course content.
Discussion	Learner will participate in classroom discussions.
Demonstration, Repetition/Practice	Each learner will demonstrate their ability to correctly perform a given task not limited to laboratory assignments, research projects, interactive role-play and group activities.

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	Readings from provided materials. Homework from provided materials: multiple-choice questions, fill in the blank and essay questions to be graded each week.	In Class Only
College level or pre-collegiate essays	A research report submitted or completed, not limited to a written presentation, however, the learner is required to research information pertaining to the assignment.	In Class Only
Student participation/contribution	Lab activities and student may participate in role play activities.	In Class Only
Mid-term and final evaluations	Used to evaluate learners' knowledge and understanding of the information presented. Examples of these are not limited to quizzes, exams, presentations, research, or projects.	In Class Only
Group activity participation/observation	Learner will be observed in lab, group activities, information research, collaborative assignments, and other activities assigned.	In Class Only
Laboratory projects	Learner will participate in interactive activities to complete their NATEF standards job sheets.	In Class Only
Other	Out-of-class hours will be accounted for electronically through the learning management system.	Out of Class Only

Assignments

Other In-class Assignments

1. Lecture notes.
2. Interactive CNG vehicle maintenance activities.
3. Interactive CNG vehicle repair activities.

Other Out-of-class Assignments

1. Readings from materials provided.
2. Homework: multiple-choice questions, fill in the blank and essay questions to be graded each week.
3. Completion of 2 SP2 safety tests.
4. Assigned readings and written summaries from selected instructor handouts.
5. Interactive lab worksheets matching each course objective.
6. Must develop teamwork skills through lab activities and assigned special projects.

Grade Methods

Pass/No Pass Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

100

Instructional Materials and Resources**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
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.

The course will be synchronous, with discussion boards, announcements and office hours.

Other Information**MIS Course Data****CIP Code**

47.0614 - Alternative Fuel Vehicle Technology/Technician.

TOP Code

094840 - Alternative Fuels and Advanced Transportation 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

Other Non-credit Enhanced Funding

Approved Special Class

Not special class

Noncredit Category

Short-Term Vocational

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Not transferable

General Education Status

Y = Not applicable

Support Course Status

N = Course is not a support course

Allow Audit

No

Repeatability

Yes

Repeatability Limit

NC

Repeat Type

Noncredit

Justification

Noncredit courses are repeatable until students are comfortable they have achieved the skills and knowledge to meet the outcomes and objectives of the course.

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

10/20/2022

Academic Senate Approval Date

10/27/2022

Board of Trustees Approval Date

12/16/2022

Chancellor's Office Approval Date

12/18/2022

Course Control Number

CCC000635357

Programs referencing this course

Compressed Natural Gas Essentials Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined/?key=278>)

CNG Essentials Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined/?key=361>)