

# AUTO 340B: CNG MAINTENANCE & REPAIR

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## New Course Proposal

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### Originator

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### Co-Contributor(s)

#### Name(s)

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### Justification / Rationale

CNG (Compressed Natural Gas) is an advanced topic in Alternate Fuels. Training is aimed at, and appropriate for, auto technicians already working in the field. Many have already completed certificates and degrees. Offering a non-credit option is appropriate for this audience.

### Effective Term

Fall 2020

### 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

### Catalog Description

This course provides classroom lecture/discussion and hands-on 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 hands-on training on CNG maintenance and repair procedures. Prerequisite: AUTO 340

### Non-credit Hours

36

### Lecture Units

0

### Lab Units

0

### Lab Semester Hours

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

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**Resource Type**

Web/Other

**Description**

NFPA 52 Vehicular Fuel Systems Code, 2015 Edition

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**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.

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**Course Content**

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

**Course Objectives**

	<b>Objectives</b>
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. 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 information given the service information manual.
Outcome 2	Perform CNG vehicle maintenance.
Outcome 3	Demonstrate the ability to perform basic CNG vehicle 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	Student will work in a team setting while performing NATEF tasks, researching information and group-based activities.
Technology-based instruction	Look up maintenance schedules in service information.
Observation	Student 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	Student will participate in classroom discussions.
Demonstration, Repetition/Practice	Each student 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
Self-paced testing, Student preparation	Student may participate in role play activities and be required to do a visual presentation.	In Class Only
College level or pre-collegiate essays	A research report submitted or completed, not limited to a written presentation, however, the student 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 students' 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	Student will be observed in lab, group activities, information research, collaborative assignments, and other activities assigned.	In Class Only
Laboratory projects	Student will participate in lab-based 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. Hands on CNG vehicle maintenance activities.
3. Hands on 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. Hands-on lab worksheets matching each course objective.
6. Must develop teamwork skills through lab activities and assigned special projects.

**Grade Methods**

Pass/No Pass Only

**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

**Allow Audit**

Yes

**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**

10/17/2019

**Academic Senate Approval Date**

10/24/2019

**Board of Trustees Approval Date**

11/13/2019

**Chancellor's Office Approval Date**

01/10/2020

**Course Control Number**

CCC000611537

**Programs referencing this course**

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