

# AUTO 340: CNG FUNDAMENTALS & SAFETY

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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

340

### Full Course Title

CNG Fundamentals & Safety

### Short Title

CNG FUNDAMENTALS/SAFETY

### Discipline

#### Disciplines List

Automotive Technology

### Modality

Face-to-Face

100% Online

Hybrid

### Catalog Description

This course provides lecture/discussion on compressed natural gas (CNG) vehicle safety and operation. The course is designed to introduce the service technician to safety, operation, and basic practices and procedures unique to gaseous fuel vehicles.

### Schedule Description

Introduction to safety, basic components and operation for compressed natural gas (CNG) vehicles.

### Non-credit Hours

72

### Lecture Units

0

### Lab Units

0

**Lab Semester Hours**

0

**In-class Hours**

36

**Out-of-class Hours**

36

**Total Course Units**

0

**Total Semester Hours**

72

**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.

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

Web/Other

**Open Educational Resource**

Yes

**Description**

Materials provided by the instructor.

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**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

**Course Content**

1. Compressed Natural Gas (CNG) safety precautions & procedures.
2. Review of gaseous fuels fundamentals.
3. Practice CNG Safety precautions and procedures.

**Course Objectives**

Objectives	
Objective 1	Upon successful completion of this course, students will be able to: List shop and vehicle safety practices relevant to compressed natural gas (CNG) vehicles.
Objective 2	Upon successful completion of this course, students will be able to: describe CNG components and describe their operation.

### Student Learning Outcomes

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

Outcome 1	Identify safety procedures and equipment related to work on compressed natural gas (CNG) vehicles.
Outcome 2	List the basic components and their functions for a compressed natural gas (CNG) vehicle.

### 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	Diagnostic equipment-based activities.
Observation	Student will be observed in lab or via the Internet, 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 reports, 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.	Out of Class Only
Self-paced testing, Student preparation	Student may participate in role play activities and be required to do a visual presentation.	Out of 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.	Out of Class Only
Student participation/contribution	Lab/Internet activities and student may participate in role play activities.	Out of 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 and Out of Class
Group activity participation/observation	Student will be observed in lab/Internet, group activities, information research, collaborative assignments, and other activities assigned.	In and Out of Class
Laboratory projects	Student will participate in lab/Internet based activities to complete their NATEF standards job sheets.	In Class Only
Reading reports	Turned in by report, written, presentation; however, the student is required to research information pertaining to the assignment.	Out of 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. Problem solving participation and discussion.
3. Hands on/Internet activities.

**Other Out-of-class Assignments**

1. Readings from provided material.
2. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
3. Completion of two SP2 safety tests.
4. Assigned readings and written summaries from selected instructor handouts.
5. Written summaries and analysis of assigned websites.
6. Must complete a course project consisting an essay describing, analyzing and summarizing a selected topic, including out of class research and fieldwork.
7. 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

**What will you be doing in the face-to-face sections of your course that necessitates a hybrid delivery vs a fully online delivery?**

The college LMS will be the only technology used to hold student data.

**Instructional Materials and Resources**

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

Resources from manufacturers are all professional and exclusive websites that focus on the subject matter.

**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:**

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

**External to Course Management System:**

Direct e-mail  
Posted audio/video (including YouTube, 3cm mediasolutions, etc.)

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

Group discussions, e-mail correspondence, voicemail.

**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

**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 required to meet the objectives and outcomes 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**

CCC000611535

**Programs referencing this course**Compressed Natural Gas Essentials Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=278/>)Compressed Natural Gas Installation Essentials Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=303/>)Compressed Natural Gas Inspection Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=304/>)