

## **MCAP-160 HEATING AND AIR CONDITIONING**      2 CREDITS

### **SYLLABUS**

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#### **CATALOG DESCRIPTION**

A theory and shop course to teach the student automotive air conditioning, heating and ventilation systems as they apply to Chrysler FCA vehicles. This course will cover advanced diagnosis, theory and practice on Chrysler FCA vehicle heating, air conditioning and ventilation systems. The course will address computer-based HVAC controls as well as the network of sensors. Environmental and personal safety will be emphasized. The safe use of test equipment will be emphasized and the student will learn to diagnose, evacuate, recover, recycle and recharge the refrigerant in automotive air conditioning systems.

Prerequisites: MCAP-120

Corequisites: MCAP-150

Semester Offered: Summer

#### ***COMMON STUDENT LEARNING OUTCOMES***

*Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...*

##### **BROAD AND SPECIALIZED LEARNING**

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

##### **CRITICAL THINKING**

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

##### **CULTURAL AND CIVIC ENGAGEMENT**

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

##### **EFFECTIVE COMMUNICATION**

Students will exchange ideas and information with clarity in multiple contexts.

##### **INFORMATION LITERACY**

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

##### **INTEGRATING TECHNOLOGIES**

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

## COURSE LEARNING OUTCOMES

*Upon successful completion of the course, the student will be able to...*

1. Completion of 100% of NATEF priority 1 tasks.
2. Completion of 85% of NATEF priority 2 tasks.
3. Completion of 75% of NATEF priority 1 tasks.

## SPECIFIC LEARNING OUTCOMES

*Upon successful completion of the course, the student will be able to...*

1. Demonstrate safe techniques while working with refrigerant systems.
2. Leak test a refrigerant system.
3. Evacuate, recycle and recharge an air conditioning system.
4. Diagnose an air conditioning system using pressure gauges.
5. Replace seals, clutches, and bearings on A.C. compressors.
6. Diagnose and repair A.C. electrical systems.
7. Replace refrigerant lines.
8. Remove and replace a receiver dryer.
9. Remove and replace a condenser.
10. Remove and replace an evaporator.
11. Remove and replace a heater core.
12. Service a heater control valve.
13. Diagnose and repair a no-heat condition.
14. Remove and replace a blower motor.
15. Diagnose and repair conditions related to the blower motor circuits such as shorts and opens.
16. Diagnose and service climate control systems using manufacturers' processes.
17. Test vacuum components.