



AUTOMOTIVE HEATING AND AIR- CONDITIONING ADVANCED (III) Course Syllabus

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Course Number:	AC103	Instructor:	Ron Rader
OCAS Code:		Phone Number:	580-327-0344
Course Length:	60 hours	Email:	rrader@nwtech.edu
Career Cluster:	Transportation	Campus:	Alva, OK
Career Pathway:	Automotive Service	Program:	Automotive Service Technology
Career Major:	Automotive Service Technician, Air Conditioning Technician,		
Pre-requisite:	Automotive Introduction, Automotive Heating and Air-Conditioning Introduction, Automotive Heating and Air-Conditioning Fundamentals		
Course Description:	In this course the student will learn to diagnose air conditioning system failure concerns, such as the protection device interrupt system, temperature control problems, climate control systems, electrical controls for heating and ventilation, load cut-off systems and other climate control malfunctions. Students will also learn to evaluate and perform the necessary action of control panel assemblies, control cables, ducts, doors and outlets.		
Instructional Philosophy:	To provide a training program that is of merit both educationally and ethically while effectively providing the individual learner the opportunities, knowledge and skills necessary to succeed in the workplace as well as life.		
Course Goals:	Upon successful completion of this course, the student will be able to: Competencies: Compressor and Clutch Diagnose A/C system conditions that cause the protection devices (pressure, thermal, and PCM) to interrupt system operation; determine necessary action. Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair Diagnose temperature control problems in the heater/ventilation system; determine necessary action Operating Systems and Related Controls Diagnosis and Repair Using scan tool, observe and record related HVAC data and trouble codes. Identify hybrid vehicle air conditioning system electrical circuits, service and safety precautions. Diagnose failures in the electrical controls of heating, ventilation, and A/C (HVAC) systems; determine necessary action. Test A/C compressor load cut-off systems; determine necessary action. Diagnose failures in the vacuum and mechanical components and controls of the heating, ventilation, and A/C (HVAC) system; determine necessary action Inspect and test A/C-heater control panel assembly; determine necessary action. Inspect and test A/C-heater control cables and linkages; perform necessary action. Inspect and test A/C-heater ducts, doors, hoses, and outlets; perform necessary action.		
Major Course Projects:	Students will perform tasks relating to the Automotive Service Industry as per standards identified by the National Automotive Technicians Education Foundation (NATEF). Students will complete repair orders each day and will document completion of competencies on competency profiles tracking individual progress and accomplishment.		

Project Outline: Projects will include performing tasks on mock ups, shop vehicles, and live work as student skills progress. These projects will reinforce classroom theory instruction and will require the student to consult industry service information during the course of task performance.

Instructional Delivery Plan: The instruction for this course will be comprised of multiple methods designed to promote and accommodate different learning styles including classroom lecture, classroom demonstrations, shop demonstrations, hands on learning activities, classroom discussion, interactive media, textbook, computer based learning activities, research projects, guest speakers, student presentations, and interactive learning with CPS (Classroom Performance System). Students will be required to practice the skills associated with the instructional content and will be required to work independently and also in teams. Assignments will require students to use academic skills in math, science, and language arts.

Assessment Plan: Students will be assessed according to three basic kinds of learning. Knowledge: Does the student possess the required knowledge to perform a specific competency? Skills: Does the student possess the necessary coordination to perform the task/competency? Attitude: Will the student perform the task/competency on the job after learning to do it? Students will also be assessed according to the basic work skills of attendance and promptness. Soft skills will be assessed in the Academic Career Center.

50%	Daily work- Performance of technical skills on job, work habits, safety, clean-up, participation
50%	Written assignment- Repair orders, textbook assignments, etc.

Grading Scale:

A	90-100	Exceeds expectations
B	80-89	Meets industry standards and expectations
C	70-79	Passing grade, but does not meet some standards
D	60-69	Passing, but only meets the minimum standards
F	Below 60	Failing, does not meet minimum standards

Alliance Credit Offered: OSU Okmulgee

Industry Alignments: ASE Certification, ODCTE Certification,

End of Instruction Industry Assessment: ASE Certification, ODCTE Certification,

Resources: Automotive Excellence Vol. 1 and Vol. 2
Modern Automotive Technology
Introduction to Automotive Service: Fundamental Concepts
CDX Global Interactive Training
Snap On Shop Key
Alldata

Attachments: See Automotive Service Technology Task List Competency Handbook