

Eastern West Virginia Community and Technical College COURSE ASSESSMENT REPORT

Course Title and Number: ATT 128 Heating and Air Conditioning (4 credits)	Academic Term and Year of Assessment Activity (Ex: Fall, 2010) Spring 2011
Report Submitted By: Doug Swick;	Number of Students Assessed: 8 students completed assessment
Date Reported Submitted: September 8, 2011	Number of Sections Included: 1
Course Delivery Format (list all modalities used in sections assessed. Ex: web based, VDL, traditional section, hybrid course, etc.): lecture/lab course, traditional course delivery	

Course Role in Curriculum
Provide a description of the role the course serves in the curriculum (i.e. general education requirement, program technical core, restricted elective, etc.) Note all as appropriate.
ATT 128 is a technical core requirement (4 credits) for automotive students in both the certificate and associate degree programs. This course introduces students to the fundamentals and technology necessary for diagnosis and repair of automotive heating and air conditioning systems. Course includes diagnosis of mechanical and electronic malfunctions that impact on climate control.

Assessment Methods
Provide a description of the assessment process used. Include description of instrument and performance standards in description. Note all methods.
<p>The ATT 128 course assessment report focuses specifically on heating, ventilation and air conditioning (HVAC) mechanical principles, and diagnostic and service skills. Lab based task sheets were used as the basic data collection instruments for this assessment. Ten learning outcomes were assessed by analyzing results of classroom/lab observation based task sheets. The task sheets were completed for each student by directly observing the student performing each designated task. All task sheets are NATEF based for adherence to national automotive repair standards. The 10 learning outcomes were assessed through the application of 10 task sheets. In total, 117 scoring items were incorporated into this assessment report. Each item was weighted equally with a score of one point. Students could attain a total composite score of 117, a minimum composite score of 94 was necessary to meet the established performance standard of 80%. Scores were further analyzed in two broad categories:</p> <ol style="list-style-type: none"> 1) HVAC mechanical principles-minimum score 46 out of 57; and 2) HVAC diagnosis and service skills- minimum score 48 out of 60. <p>The outcomes assessed are grouped into the 2 categories and are listed below:</p> <p>HVAC mechanical principles</p> <ol style="list-style-type: none"> 5. Locate and interpret vehicle and major component identification numbers. 11. Identify proper gauge set for refrigerant type. 12. Record temperature and pressure readings. 62. Perform correct use of refrigerant handling equipment according to equipment manufacturer's standards. <p>HVAC diagnosis and service</p> <ol style="list-style-type: none"> 10. Identify abnormal operation noises in the A/C system. 51. Determine removal procedures of heater core based on application. 52. Install heater core. 53. Diagnose malfunction in the electrical controls of HVAC system. 54. Test AC-heater blower, motors, resistors, switches, relays, wiring, and protection devices. 56. Diagnose malfunctions in the vacuum, mechanical, and electrical components of the HVAC system.

Assessment Results			
Provide a summary of results including tables/charts. Incorporate information from previous assessments as appropriate. Append additional pages if necessary. If appending, include notation in box to "See Attached."			
See Attachment for Task Sheets			
HVAC Mechanical Principles: 88% of the students completed 46-57 of the 57 tasks correctly, exceeding the minimum standard of 46 (i.e. 80% of the tasks). One of the students in the sample failed the course due in part to his failure to make up work missed and his lack of commitment to the program.			
HVAC Diagnosis and Service: 100% of the students completed 48-60 of the 60 tasks correctly, exceeding the minimum standard of 48 (i.e. 80% of the tasks).			
Distribution of Scores for Outcomes and Composite Score per Task Sheet Analysis N=8			
Student ID #	Principle Score (Standard: 46 out of 57)	Diagnosis Score (Standard 48 out of 60)	Composite Score (Standard 94 out of 117)
1	57	60	117
2	57	60	117
3	50	55	105
4	57	60	117
5	57	60	117
6	0	49	49
7	57	60	117
8	57	60	117
Total Sample for Points	392	464	856
% at Minimum Standard	88%	100%	88%

Course Level Assessment Summary of Outcomes, Indicators and Results				
Course Title and Number				
Number of students in assessment sample = 8				
Number of Sections in Assessment = 1				
Add additional rows to table if necessary				
Learning Outcomes (Insert learning outcomes assessed during this cycle)	Indicator (Insert indicators used for each outcome: exam question, scoring rubric, etc. Be specific)	Percent of Correct Responses	Percent of Incorrect Responses	Performance Standard Met (75%)* (yes or no)
Composite Score	Total composite score: minimum of 94 out of 117 points for completed task sheets (Total points for sample=936, 856 answered correctly)	92%	8%	Yes
Outcome 1:HVAC Mechanical Principles	Task Sheets for: Locate and interpret vehicle and major equipment identification numbers Identify proper gauge set for refrigerant type Record temperature and pressure readings Perform correct use of refrigerant handling equipment according to equipment manufacturer's standards Performance Standard: minimum of 46 out of 57 points Total points for sample=456; 392 answered correctly.	86%	14%	Yes
Outcome 2: HVAC Diagnosis and Service	Task Sheets for: Identify abnormal operation noises in AC system Determine removal procedures of heater core based on application Install heater core Diagnose malfunction in the electrical	97%	3%	Yes

	<p>controls of HVAC system Test AC-heater blower, resistors, switches, relays, wiring and protection devices Diagnose malfunction in the vacuum, mechanical and electrical components of the HVAC system Performance Standard: minimum of 48 out of 60 points. (Total points for sample=480; 464 answered correctly).</p>			
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*Please note if using a different minimum performance standard.

<p>Conclusions and Action Plan Provide a brief summary of conclusions derived based on analysis of data. Identify action plan for improvement or maintaining current performance levels. Append additional pages if necessary. If appending, include notation in box to "See Attached."</p>
<p>Based on an analysis of the completed task sheets for the designated learning outcomes, the results indicate that the learning outcomes have been met successfully by those students completing the assessment activities. Basic principles for HVAC system operations and service remain constant. However, the evolution of CAN systems within various manufacturers changes the actual operational control of many HVAC systems. Future course offerings will incorporate these changes.</p>

<p>Effective Date for Changes or Curriculum Proposal Submission to LOT (if recommended)</p>	<p>Proposed Date for Reassessment</p>
	<p>2013</p>

<p>Assessment Committee Approval (To be posted by Assessment Committee Chair)</p>	<p>LOT Review (To be posted by Assessment Committee Chair)</p>
<p>Date: 9-12-11 (SB-G)</p>	<p>Date: 9-19-11 (SB-G)</p>