



Heating, Ventilation, Air-Conditioning, and Refrigeration Technology Cluster Blueprints

This document contains the 2014 blueprints for postsecondary Heating, Ventilation, Air-Conditioning, and Refrigeration Technology concentrations.

HVAC—Service and Installation Concentration

- **Career Certificate** (20254Y1-2014) *
- **Technical Certificate** (20254Y2-2014) ◇

HVAC—Selling and Business Concentration

- **Career Certificate** (20254Y1-2014) *
- **Technical Certificate** (20254Y2-2014) ◇

***Career Certificate** for HVAC (Service and Installation Concentration) and for HVAC (Selling and Business Concentration) have a core assessment (20254Y1-2014).

◇**Technical Certificate** for HVAC (Service and Installation Concentration) and for HVAC (Selling and Business Concentration) have a core assessment (20254Y2-2014).



MS-CPAS2 Blueprint Summary

Assessment: Heating, Ventilation, Air-Conditioning, and Refrigeration Technology
Test Code: 20254Y1-2014
CIP Code: 470201
Course Codes:
Type: PS

The MS-CPAS2 Blueprint Summary indicates the number of assessment questions related to each unit on the assessment and indicates the relative emphasis placed on each unit. All of the listed competencies will appear on the assessment, but because of the length of the assessment, not every competency will be equally represented in the assessment.

The MS-CPAS2 Blueprint Summary includes a variety of information, which is explained below:

Terms and Definitions	
Assessment:	This signifies the name of the assessment, which corresponds with the name of the pathway or program.
CIP Code:	Developed by the U.S. Department of Education's National Center for Education Statistics (NCES), CIP codes are a federal coding system utilized for assessment and reporting of fields of study and program completions activity tracking.
Test Code:	A unique code that serves to numerically identify a specific assessment
DOK Levels:	Based on Webb's Depth of Knowledge (DOK), this signifies the assessment item difficulty factor to be expected in each unit. The three levels are as follows: <i>1 = Recall and Reproduction, 2 = Skills and Concepts, 3 = Short-term Strategic Thinking</i> Some postsecondary programs will not use DOK levels until the next revision.
Instructional Hours:	The total number of hours assigned to a unit per the pathway's curriculum
Total Items:	The total number of items assigned to each unit on the assessment. It is calculated as follows: <i>(Unit Instructional Hours / Total Instructional Hours) * Total Active Items</i>
Active Items:	The number of items on the assessment that will be graded
Field-test Items:	The number of items that are being field-tested, or piloted, to determine their eligibility for inclusion as an Active Item on future assessments. These items are not graded and, thus, will not impact the student's final score.
Total Assessed Items:	The total number of items on the given assessment. It is calculated as follows: <i>Active Items + Field-test Items</i>

For more information regarding this MS-CPAS2 Blueprint Summary, please contact the Mississippi Assessment Center by phone at 1.866.901.7433 or by e-mail at helpdesk@rcu.msstate.edu.



Assessment: Test Code: CIP Code: Total Hours:	Heating, Ventilation, Air- Conditioning, and Refrigeration Technology			DOK Level(s)	Instructional Hours	Total Items
	20254Y1-2014	470201	16			
ACT 1003: Introduction to Heating and Air Conditioning Technology	1	2		3	8	
1. NCCER Core: Module 00101-09 - Basic Safety 2. NCCER Core: Module 00102-09 - Introduction to Construction Math 3. NCCER Core: Module 00103-09 - Introduction to Hand Tools 4. NCCER Core: Module 00104-09 - Introduction to Power Tools 5. NCCER Core: Module 00105-09 - Introduction to Construction Drawings 6. NCCER Core: Module 00107-09 - Basic Communication Skills 7. NCCER Core: Module 00108-09 - Basic Employability Skills 8. NCCER Core: Module 00109-09 - Introduction to Materials Handling						
ACT 1124: Basic Compression Refrigeration	1	2		4	10	
1. NCCER HVAC Level 1: Module 13101-13 - Introduction to HVAC 2. NCCER HVAC Level 1: Module 13102-13 - Trade Math 3. NCCER HVAC Level 1: Module 13107-13 - Introduction to Cooling						
ACT 1313: Refrigeration System Components	1	2		3	7	
1. NCCER HVAC Level 2: Module 03302-13 - Compressors 2. NCCER HVAC Level 2: Module 03303-13 - Metering Devices						
ACT 1713: Electricity for Heating, Ventilation, Air-Conditioning, and Refrigeration I	1	2		3	7	
1. NCCER HVAC Level 1: Module 03106-13 - Basic Electricity 2. NCCER HVAC Level 2: Module 03206-13 - Alternating Current						
ACT 2433: Refrigerant, Retrofit, and Regulations	1	2		3	8	
1. NCCER HVAC Level 2: Module 033011-13 - Refrigerants and Oils 2. NCCER HVAC Level 2: Module 03205-13 - Leak Detection, Evacuation, Recovery, and Charging 3. Describe and perform basic elements of refrigerant recovery and recycling. 4. Identify/explain the functions and types of lubricants, and perform basic service activities.						
Active Items					40	
Field-Test Items					10	
TOTAL ASSESSED ITEMS					50	



MS-CPAS2 Blueprint Summary

Assessment: Heating, Ventilation, Air-Conditioning, and Refrigeration Technology
Test Code: 20254Y2-2014
CIP Code: NA
Course Codes:
Type: PS

The MS-CPAS2 Blueprint Summary indicates the number of assessment questions related to each unit on the assessment and indicates the relative emphasis placed on each unit. All of the listed competencies will appear on the assessment, but because of the length of the assessment, not every competency will be equally represented in the assessment.

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Assessment: Test Code: CIP Code: Total Hours:	Heating, Ventilation, Air-Conditioning, and Refrigeration Technology			DOK Level(s)	Instructional Hours	Total Items
	20254Y2-2014	NA	12			
ACT 2424: Heating, Ventilation, and Air Conditioning II	1	2		4	13	
1. NCCER HVAC Level 2: Module 03203-13 - Introduction to Hydronic Systems 2. NCCER HVAC Level 3: Module 03311-13 - Troubleshooting Heat Pumps 3. NCCER HVAC Level 2: Module 03312-13 - Troubleshooting Accessories						
ACT 2324: Commercial Refrigeration	1	2		4	14	
1. Define and perform checks of multiplexed evaporator systems. 2. Explain and perform routine maintenance and repairs of refrigerated storage. 3. Explain and perform routine maintenance and repair of ice makers. 4. Identify and discuss operations check of packaged liquid chillers. 5. Explain and perform maintenance of other system applications.						
ACT 2624: Heat Load and Air Properties	1	2		4	13	
1. NCCER HVAC Level 2: Module 03213-13 - Sheet Metal Duct Systems 2. NCCER HVAC Level 2: Module 03214-13 - Fiberglass and Fabric Duct Systems 3. NCCER HVAC Level 2: Module 03201-13 - Commercial Airside Systems 3.						
Active Items					40	
Field-Test Items					10	
TOTAL ASSESSED ITEMS					50	