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Industrial Maintenance
Blueprint Information

Beginning in Fall 2016,

Year 1 will be taught and assessed using the 2016 Industrial Maintenance.*

Year 2 will be taught and assessed using the 2009 Industrial Maintenance.*

2009 Industrial Maintenance curriculum will be retired July 1, 2017.*

*This assessment plan is subject to change based on funding and policy changes/updates. Information for test coordinators will be disseminated on the ordering process for the national certification by the Research and Curriculum Unit at Mississippi State University.

SEC – Industrial Maintenance Blueprints

This document contains the blueprints for secondary Industrial Maintenance.

Course Code(s)	Test Code	Program Name	Supplemental Materials/Notes
993001, 993002, 993003	11333Y1-2016	Industrial Maintenance	
993011, 993012, 993013	11333Y2-2009	Industrial Maintenance	

	Perkins Assessment 2016-17		Teacher Evaluation Pilot 2016-17			
Curriculum	Y1 Post-Test	Y2 Post-Test	Y1 Baseline	Y1 Post-Test	Y2 Baseline	Y2 Post-Test
Industrial Maintenance	MS-CPAS2*	MS-CPAS2*	NA*	NA*	NA*	NA*

* These assessments are subject to change based on funding and policy changes/updates.

MS-CPAS2 Blueprint Summary

Assessment: Industrial Maintenance
Test Code: 11333Y1-2016
CIP Code: 470303
Course Codes: 993001, 993002, 993003
Type: CP

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: *1 = Recall and Reproduction, 2 = Skills and Concepts, 3 = Short-term Strategic Thinking* **Some postsecondary programs will not use DOK levels until the next revision.**
Instructional	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: *(Unit Instructional Hours / Total Instructional Hours) * Total Active Items*
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: *Active Items + Field-test Items*

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: Industrial Maintenance Test Code: 11333Y1-2016 CIP Code: 470303 Total Hours: 215	DOK Level(s)			Instructional Hours	Total Items
Unit 1: Introduction and Orientation	1			25	9
1. Not tested on MS-CPAS2. 2. Describe employment opportunities and responsibilities. 3. Not tested on MS-CPAS2. 4. Demonstrate the ability to follow verbal and written instructions and communicate effectively in on-the-job situations.					
Unit 2: Basic Safety	1			25	9
1. Describe, define, and illustrate general safety rules for working in a shop/lab and how they relate to the manufacturing industry. 2. Identify and apply safety around welding operations. 3. Display appropriate safety precautions to take around common jobsite hazards. 4. Demonstrate the appropriate use and care of personal protective equipment (PPE). 5. Explain fall protection, ladder, stair, and scaffold procedures and requirements. 6. Explain the material safety data sheet (MSDS). 7. Display appropriate safety procedures related to fires. 8. Explain safety in and around electrical situations.					
Unit 3: Introduction to Construction Math	1			20	7
1. Apply the four basic math skills using whole numbers, fractions, decimals, and percentages, both with and without a calculator.					
Unit 4: Hand and Power Tools	1			40	15
1. Demonstrate the use and maintenance of hand and power tools.					
Unit 5: Introduction to Construction Drawings	1	2		30	11
1. Read, analyze, and understand basic components of a blueprint.					
Unit 6: Introduction to Materials Handling		2		25	10
1. Safely handle and store materials.					
Unit 7: Tools of the Trade, Fasteners and Anchors, and Oxy-Fuel Cutting	1			50	19
discuss proper care and maintenance of the tools. remove fasteners and anchors, and how to select the correct fastener or anchor for an application. equipment.					
Unit 8: Introduction to the National Electrical Code		2		15	Not tested on MS-CPAS2
1. Describe the purpose of the NEC, reference NEC code, and explain current applications of the NEC.					
Unit 9: Basic Electrical	1	2		25	Not tested on MS-CPAS2

1. Identify electrical safety hazards, demonstrate safety around circuits and equipment, describe basic electricity laws, interpret electrical drawings and schematics, and demonstrate wiring basic electrical circuits.					
Unit 10: Copper and Plastic Piping, and Soldering and Brazing	**1**	**2**		**25**	**Not tested on MS-CPAS2**
1. Demonstrate the safe use and routine maintenance of hand and power tools used in the Industrial Maintenance trade. 2. Identify and discuss the tools used in the piping trade, discuss the materials and methods of connecting piping systems, and perform copper and plastic piping tasks found in the industrial maintenance and Industrial Maintenance environment. 3. Prepare and solder copper piping systems in various industrial and Industrial Maintenance applications and properly clean, install fittings, and braze piping (silver solder).					
				Active Items	**80**
				Field-Test Items	**20**
				TOTAL ASSESSED ITEMS	**100**

MS-CPAS2 Blueprint Summary

Assessment: Industrial Maintenance
Test Code: 11333Y2-2009
CIP Code: 470303
Course Codes: 993011, 993012, 993013
Type: CP

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: *1 = Recall and Reproduction, 2 = Skills and Concepts, 3 = Short-term Strategic Thinking* **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: *(Unit Instructional Hours / Total Instructional Hours) * Total Active Items*
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: *Active Items + Field-test Items*

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: Industrial Maintenance Test Code: 11333Y2-2009 CIP Code: 470303 Total Hours: 275	DOK Level(s)			Instructional Hours	Total Items
Unit 6: Gaskets and Packing, Pumps and Drivers, Introduction to Valves, and Lubrication		**2**		**105**	**30**
1. Identify different types of gasket and packing materials, list their applications, and install gaskets and packing. 2. Identify types of pumps and prime movers, and explain pressure differential between inlet and outlet of pumps. 3. Identify types of valves, and explain how to store and properly install valves. 4. Describe and explain lubricant classification, additives, uses, and environments regulation regarding disposal of oils and greases.					
Unit 7: Related Construction Math, Construction Drawings, Introduction to Test Equipment, Material Handling and Rigging, and Mobile and Support Equipment	**1**	**2**		**85**	**25**
1. Identify and explain measuring devices, solve geometric mathematical problems, and use weights and measurement standards. 2. Identify components of the blueprint and scales, and perform projects from blueprints. 3. Identify and explain the use of various test equipment used in the trade, differentiate between analog and digital meter readouts, and properly test circuits and mechanisms using available school metering devices. 4. Identify and explain safe rigging practices, load distribution, hand signals, and rigging equipment. 5. Recognize types of mobile and support equipment found in the trade, explain the application for each device, and safely use equipment. 6. Identify types of conduit and sizes, bend various radiuses, and properly install conduit according to National Electrical Code.					

Unit 16: Electrical Theory, Conductor Terminations and Splices, Hydraulic & Pneumatic ControlsUnit 8: Introduction to the	**1**	**2**		**85**	**25**
1. Describe the purpose of the NEC, reference NEC code, and explain current applications of the NEC. 2. Describe the units of measure of electricity and the types of circuits, define Ohm's and Kirchhoff's laws, and troubleshoot a simple circuit. 3. Explain the principles of hydraulic and pneumatic systems.3. Identify and make connections using various types of conductors, types of fastening devices, and NEC requirements for terminations and splices. 4. Identify and make connections using various types of conductors, types of fastening devices, and NEC requirements for terminations and splices.					
				Active Items	**80**
				Field-Test Items	**20**
				TOTAL ASSESSED ITEMS	**100**