MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

MS-CPAS Blueprint Summary

Assessment: Automation and Control Technology
Test Code: 21307Y1-2018
CIP Code: 150613
Certificate: Career
Type: PS

The MS-CPAS 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-CPAS 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:
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-CPAS Blueprint Summary, please contact the Research and Curriculum Unit by phone at 1.866.901.7433 or by e-mail at helpdesk@rcu.msstate.edu.

Assessment:	Automation and Control Technology		
Test Code:	21307Y1-2018		
CIP Code:	150613		
Total Hours:	15	Instructional Hours	Total Items
IAT 1123: Electrical Wiring for Automation Control Technology for Automation and Control		**3**	**8**
1. Apply general safety rules. 2. Install and maintain raceways, conduit, and fittings. 3. Explain different types of three-phase service entrances, metering devices, main panels, raceways or ducts, subpanels, feeder circuits, and branch circuits according to electrical codes.			
IAT 1133: AC/DC Circuits for Automation and Control		**3**	**8**
1. Explain and apply basic safety regulations which must be followed. 2. Define basic electronics terms. 3. Measure values in DC and AC Circuits. 4. Demonstrate and apply understanding of a basic DC and AC electronic circuit. 5. Analyze and evaluate parameters of series, parallel, and series parallel circuits. 6. Analyze inductance and capacitance in DC and AC series and parallel circuits.			
IAT 1143: Fluid Power for Automation and Control		**3**	**8**
1. Define and describe basic laws governing fluids. 2. Identify and draw symbols for hydraulics and pneumatics. 3. Describe operation and nomenclature of various pumps and compressors. 4. Explain fluids as pertaining to the transmission of energy. 5. Describe the operation of flow, pressure, and directional control valves. 6. Explain the types of actuators used in pneumatics and hydraulics. 7. Explain, construct, and troubleshoot various hydraulic and pneumatic circuits. 8. Demonstrate the use of electro-mechanical controls in hydraulic and pneumatic circuits.			
IAT 1153: Motor Controls for Automation and Control		**3**	**8**
1. Install different control circuits and devices. 2. Troubleshoot different control circuits and devices.			
IAT 1173: Control System I for Automation and Control		**3**	**8**
1. Explain and apply basic safety regulations which must be followed. 2. Describe and interpret block diagrams, instrument tags, loop drawings, and piping and instrument diagrams (P&ID). 2. Describe and discuss temperature measurement devices. 3. Describe and discuss pressure measurement devices and their use. 4. Describe and discuss level measurement devices and their use. 5. Describe flow measurement devices and their use. 6. Describe sensors used in process analysis. 7. Describe information transmission pertaining to process control.			
		Active Items	**40**
		Field-Test Items	**10**
		TOTAL ASSESSED ITEMS	**50**

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MS-CPAS Blueprint Summary

Assessment:	Automation and Control Technology
Test Code:	21307Y2-2018
CIP Code:	150613
Certificate:	Technical
Type:	PS

The MS-CPAS 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-CPAS 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:
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*

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Assessment:	Automation and Control Technology		
Test Code:	21307Y2-2018		
CIP Code:	150613		
Total Hours:	9	Instructional Hours	Total Items
IAT 2113: Programmable Logic Controllers for Automation and Control		**3**	**14**
1. Explain principles of PLCs.			
2. Identify different types of PLC hardware.			
3. Explain numbering systems, encoding/decoding, and logical operations.			
4. Program all types of internal and discrete instructions.			
5. Troubleshoot and maintain different programmable controller systems.			
IAT 2123: Control Systems II for Automation and Control		**3**	**13**
1. Identify and describe parameters and variables of an operational process control system.			
2. Describe control valve characteristics.			
3. Describe various modes of process control.			
4. Describe advanced control methods.			
5. Troubleshoot process control loops.			
6. Demonstrate procedures for handling, storing, and disposing of hazardous materials.			
IAT 2133: Solid State Motor Controls for Automation and Control		**3**	**13**
1. Apply general safety and safety requirements for working on and around electrical motors.			
2. Troubleshoot solid state motor controls.			
3. Operate AC and DC variable speed drives.			
		Active Items	**40**
		Field-Test Items	**10**
		TOTAL ASSESSED ITEMS	**50**