

## MS-CPAS Blueprint Summary

<b>Assessment:</b>	<b>Automation and Control Technology</b>
<b>Test Code:</b>	<b>21307Y1-2011</b>
<b>CIP Code:</b>	<b>150613</b>
<b>Course Codes:</b>	
<b>Type:</b>	<b>PS</b>

The MS-CPAS Blueprint Summary indicates the number of assessment questions related to each unit on the assessment and 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:

Term and Definition	
<b>Assessment:</b>	Signifies the name of the assessment, which corresponds with the name of the pathway or program.
<b>CIP Code:</b>	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 for reporting and tracking fields of study and program completions activity.
<b>Test Code:</b>	A unique code that serves to numerically identify a specific assessment.
<b>DOK Levels:</b>	Based on Webb's Depth of Knowledge (DOK), this signifies the assessment item's 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> <b>Some postsecondary programs will not use DOK levels until the next revision.</b>
<b>Instructional Hours:</b>	The total number of hours assigned to a unit per the pathway's curriculum.
<b>Total Items:</b>	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>
<b>Active Items:</b>	The number of graded items on the assessment.
<b>Field-test Items:</b>	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.
<b>Total Assessed Items:</b>	The total number of items on the given assessment. It is calculated as follows: <i>Active Items + Field-test Items</i>

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Assessment: Automation and Control Technology	DOK Level(s)			Instructional Hours	Total Items
Test Code: 21307Y1-2011					
CIP Code: 150613					
Total Hours: 18					
<b>EET 1114: DC Circuits</b>				<b>4</b>	<b>9</b>
1. Demonstrate and practice general safety procedures in the school and work-site environments. 2. Demonstrate and apply an understanding of a basic electrical circuit. 3. Demonstrate an understanding of voltage, current, resistance, and power and how they relate. 4. Analyze and evaluate the parameters of a series circuit. 5. Analyze and evaluate the parameters of a parallel circuit. 6. Analyze and evaluate the parameters of a series-parallel circuit. 7. Apply network theorems to the analysis of complex circuits. 8. Explain capacitance and demonstrate its application in DC and transient circuits. 9. Explain inductance and demonstrate its application in DC and transient circuits.					
<b>EET 1123: AC Circuits</b>				<b>3</b>	<b>7</b>
1. Analyze a sine wave and explain its characteristics and application to AC circuits. 2. Analyze inductive and capacitive reactance in series and parallel circuits. 3. Analyze transformer voltage, current, impedance transformations, and applications. 4. Explain RLC nonresonant and resonant circuits. 5. Explain and classify filters.					
<b>INT 1214: Fluid Power</b>				<b>4</b>	<b>9</b>
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.					
<b>ELT 1334: Solid State Devices and Circuits</b>				<b>4</b>	<b>9</b>
1. Explain the characteristics of semiconductor materials and theory of operation of PN junctions. 2. Explain semiconductor diode theory and apply to diode circuits. 3. Analyze the operation of semiconductor special-purpose diodes. 4. Analyze the operation of bipolar junction transistors. 5. Explain and analyze the construction of BJT amplifiers. 6. Analyze the operation of field effect transistors and demonstrate their applications. 7. Analyze the operation of thyristors and demonstrate their applications.					
<b>ELT 1413: Motor Control Systems</b>				<b>3</b>	<b>6</b>
1. Install different control circuits and devices. 2. Troubleshoot different control circuits and devices.					
<b>Active Items</b>					<b>40</b>
<b>Field-Test Items</b>					<b>10</b>
<b>TOTAL ASSESSED ITEMS</b>					<b>50</b>

## MS-CPAS Blueprint Summary

<b>Assessment:</b>	<b>Automation and Control Technology</b>
<b>Test Code:</b>	<b>21307Y2-2011</b>
<b>CIP Code:</b>	<b>150613</b>
<b>Course Codes:</b>	
<b>Type:</b>	<b>PS</b>

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Assessment: Automation and Control Technology Test Code: 21307Y2-2011 CIP Code: 150613 Total Hours: 11	DOK Level(s)			Instructional Hours	Total Items
	1	2	3		
<b>EET 1214: Digital Electronics</b>	1	2		4	15
1. Perform mathematical operations in digital number systems. 2. Classify logic gates, and explain their functions. 3. Analyze logic circuits. 4. Minimize logic circuits using Boolean algebra and Karnaugh mapping. 5. Analyze principles and operations of digital display devices. 6. Explain the operation of basic memory circuits.					
<b>INT 2114: Control Systems I</b>	1	2	3	4	15
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). 3. Describe and discuss temperature measurement devices. 4. Describe and discuss pressure measurement devices. 5. Describe and discuss level measurement devices and their use. 6. Describe flow measurement devices and their use. 7. Describe sensors used in process analysis. 8. Describe information transmission pertaining to process control.					
<b>ELT 2613: Programmable Logic Controllers</b>	1	2		3	10
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 controllers systems.					
<b>Active Items</b>					<b>40</b>
<b>Field-Test Items</b>					<b>10</b>
<b>TOTAL ASSESSED ITEMS</b>					<b>50</b>