



SEC – Electrical Blueprints

This document contains the blueprints for the concentration areas in secondary Electrical.

Course Code(s)	Test Code	Program Name	Supplemental Materials/Notes
993120, 993121, 993122	10229Y2-2012	Electrical	

Curriculum	Perkins Assessment 2016-17		Teacher Evaluation Pilot 2016-17			
	Y1 Post-Test	Y2 Post-Test	Y1 Baseline	Y1 Post-Test	Y2 Baseline	Y2 Post-Test
Electrical	See Construction Core*	MS-CPAS2* and NCCER*	NA*	NA*	NA*	NA*

For more information concerning NCCER testing: <http://www.nccer.org/academic>

* These assessments are 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.



MS-CPAS2 Blueprint Summary

Assessment: Electrical
Test Code: 10229Y2-2012
CIP Code: 460302
Course Codes: 993120, 993121, 993122
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: <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	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: Electrical	DOK Level(s)			Instructional Hours	Total Items
Test Code: 10229Y2-2012					
CIP Code: 460302					
Total Hours: 204					
Unit 1: Not on CPAS					
Unit 2: Introduction to Electrical Theory, Circuits, and Test Equipment	1	2		30	11
1. Define the units of measurement that are used to measure the properties of electricity. 2. Explain the difference between conductors and insulators. 3. Explain the basic characteristics and calculation of series, parallel, and combination circuits. 4. Identify and explain the operation of and describe the following pieces of test equipment.					
Unit 3: Introduction to the National Electrical Code and Residential Electrical Services	1	2	3	50	20
1. Explain the purpose, navigational layout, and history of the NEC. 2. Describe the purpose of the National Electrical Manufacturers Association (NEMA) and the National Fire Protection Association (NFPA). 3. Explain the role of the National Electrical Code in residential wiring and describe how to determine electric service requirements for dwellings. 4. Explain the types and purposes of grounding equipment. 5. Calculate and select service-entrance equipment. 6. Select the proper wiring methods for various types of residences. 7. Compute branch circuit loads and explain their installation requirements. 8. Size outlet boxes and select the proper type for different wiring methods. 9. Describe rules for installing electric space heating and HVAC equipment. 10. Describe the installation rules for electrical systems around swimming pools, spas, and hot tubs. 11. Explain how wiring devices are selected and installed. 12. Describe the installation and control of lighting fixtures.					
Unit 4: Devices Boxes, Raceways, and Fittings	1	2		50	20
1. Identify, select and install various types and sizes of raceways and fittings for a given application. 2. Identify the appropriate conduit body for a given application. 3. Describe the different types of nonmetallic and metallic boxes. 4. Calculate the NEC fill requirements for boxes under 100 cubic inches.					
Unit 5: Hand Bending	1	2		30	12
1. Identify the methods for hand bending and installing conduit. 2. Determine conduit bends. 3. Make 90-degree bends, back-to-back bends offsets, kicks, and saddle bends using a hand bender.					
Unit 6: Conductors and Cables	1	2		30	12
1. From the cable markings, describe the insulation and jacket material, conductor size and type, number of conductors, temperature rating, voltage rating, ampacity, and permitted uses. 2. Identify the NEC requirements for color coding of conductors. 3. Install conductors in a raceway system.					
Unit 7: Basic Electrical Construction Drawings	1			14	5
1. Explain the basic layout of a set of construction drawings.					



2. Identify the types of lines used on construction drawings.
3. Using multiple scales, state the actual dimensions of a given drawing component.
4. Interpret electrical drawings, including site plans, floor plans, detail drawings and equipment schedules.
5. Describe the type of information included in electrical specifications.

Active Items	80
Field-Test Items	20
TOTAL ASSESSED ITEMS	100