



## Diesel Equipment Technology Cluster Blueprints

This document contains the 2015 blueprints for postsecondary Diesel Equipment Technology options.

### **Diesel Equipment Technology—Transportation Option**

- **Career Certificate** (21634Y1-2015) \*
- **Technical Certificate** (21634Y2-2015)

### **Diesel Equipment Technology—Heavy Equipment Option**

- **Career Certificate** (21634Y1-2015) \*
- **Technical Certificate** (21635Y2-2015)

\***Career Certificate** for Diesel Equipment Technology (Transportation Option) and Diesel Equipment Technology (Heavy Equipment Option) have a core assessment (21634Y1-2015).



Assessment: Diesel Equipment Technology					
Test Code: 21634Y1-2015					
CIP Code: NA				DOK Level(s)	Instructional Hours
Total Hours: 21				Total Items	
<b>DET 1114: Fundamentals of Equipment Mechanics</b>	1	2		4	8
<ol style="list-style-type: none"> <li>Describe general safety rules for working in a shop/lab and industry.</li> <li>Use proper safety practices when performing diesel repair operations.</li> <li>Identify and explain the procedures for lifting heavy objects.</li> <li>Explain the Material Safety Data Sheet (MSDS).</li> <li>Explain fires.</li> <li>Explain electrical safety hazards, injuries, and precautions in and around diesel repair.</li> <li>Demonstrate the proper use and interpretation of precision measurement instruments.</li> <li>Introduce programs that promote continuous improvement of efficiencies in the workplace.</li> </ol>					
<b>DET 1223: Electrical/Electronic Systems I</b>	1	2		3	5
<ol style="list-style-type: none"> <li>Explore general electronic and electrical systems.</li> <li>Discuss and perform battery diagnosis and repair.</li> <li>Discuss and perform starting system diagnosis and repair.</li> <li>Discuss and perform charging system diagnosis and repair.</li> <li>Discuss digital multi-meter usage and operation.</li> </ol>					
<b>DET 1513: Hydraulics I</b>	1	2		3	6
<ol style="list-style-type: none"> <li>Explore general hydraulic system operation.</li> <li>Discuss and perform pump operation, diagnosis, and repair.</li> <li>Discuss filtration/ reservoirs (tanks).</li> <li>Discuss hoses, fittings, and connections.</li> <li>Discuss and perform control valve diagnosis and repair.</li> <li>Discuss actuators. [Comply with manufacturers' and industry accepted safety practices associated with equipment lock out/tag out; pressure line release; implement/support (blocked or resting on ground); and articulated cylinder devices/machinery safety locks.]</li> </ol>					
<b>DET 1364: Diesel Systems I</b>	1	2		4	8
<p>There is no # 1 in the curriculum.</p> <ol style="list-style-type: none"> <li>Explore cylinder head and valve train diagnosis and repair.</li> <li>Discuss and perform engine block diagnosis and repair.</li> </ol>					
<b>DET 1614: Preventive Maintenance and Service</b>	1	2		4	7
<ol style="list-style-type: none"> <li>Explore engine systems.</li> <li>Explore the cab and hood.</li> <li>Explore frame and chassis.</li> </ol>					
<b>DET 1813: Air Conditioning and Heating Systems</b>	1	2		3	6



Assessment:	Diesel Equipment Technology			
Test Code:	21634Y1-2015			
CIP Code:	NA	DOK Level(s)	Instructional Hours	Total Items
Total Hours:	21			
1. Identify theories, operating principles, and current regulations related to air conditioner service.				
2. Explore A/C system and component diagnosis, service, and repair.				
3. Explore A/C system and component diagnosis, service, and repair.				
4. Explore operating systems and related controls diagnosis and repair.				
5. Explore refrigerant recovery, recycling, and handling diagnosis, service, and repair.				
6. Complete the requirements for Section 609 Certification. (Not tested on MS-CPAS)				
<b>Active Items</b>				<b>40</b>
<b>Field-Test Items</b>				<b>10</b>
<b>TOTAL ASSESSED ITEMS</b>				<b>50</b>



# MS-CPAS2 Blueprint Summary

**Assessment:** Diesel Equipment Technology (Transportation Option)  
**Test Code:** 21634Y2-2015  
**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.

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

Terms and Definitions	
<b>Assessment:</b>	This 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 reporting of fields of study and program completions activity tracking.
<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 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 items on the assessment that will be graded
<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>

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](mailto:helpdesk@rcu.msstate.edu).



Assessment: Test Code: CIP Code: Total Hours:	Diesel Equipment Technology (Transportation Option)			DOK Level(s)	Instructional Hours	Total Items
	21634Y2-2015	NA	12			
<b>DET 2273: Electrical/Electronic Systems III</b>	1	2			3	10
1. Explore, discuss, and repair electronic fuel management systems.						
<b>DET 2253: Steering and Suspension Systems</b>	1	2			3	10
1. Explore steering systems. 2. Discuss and perform suspension systems diagnosis and repair. 3. Discuss and perform wheel alignment diagnosis, adjustment, and repair. 4. Discuss and perform wheels and tires diagnosis and repair. 5. Discuss and perform frame service and repair.						
<b>DET 1713: Transportation Power Train</b>	1	2			3	10
1. Explore clutch diagnosis and repair. 2. Discuss and perform transmission diagnosis and repair. 3. Discuss and perform driveshaft and universal joint diagnosis and repair. 4. Discuss and perform drive axle diagnosis and repair.						
<b>DET 2623: Advanced Brake Systems (Air)</b>	1	2			3	10
1. Explore air brakes diagnosis and repair. 2. Discuss and perform mechanical/foundation diagnosis and repair. 3. Discuss and perform parking brakes diagnosis and repair. 4. Discuss and perform mechanical foundation system diagnosis and repair. 5. There is not a #5 in the curriculum. 6. Discuss and perform antilock brake system (ABS) diagnosis and repair.						
<b>Active Items</b>						<b>40</b>
<b>Field-Test Items</b>						<b>10</b>
<b>TOTAL ASSESSED ITEMS</b>						<b>50</b>



# MS-CPAS2 Blueprint Summary

**Assessment:** Diesel Equipment Technology (Heavy Equipment Option)  
**Test Code:** 21635Y2-2015  
**CIP Code:** NA  
**Course Codes:**  
**Type:** PS

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Assessment: Test Code: CIP Code: Total Hours:	Diesel Equipment Technology (Heavy Equipment Option)			DOK Level(s)	Instructional Hours	Total Items
	21635Y2-2015	NA	12			
<b>DET 2273: Electrical/Electronic Systems III</b>	<b>1</b>	<b>2</b>		<b>3</b>	<b>10</b>	
1. Explore, discuss, and repair electronic fuel management systems.						
<b>DET 2523: Heavy Equipment Power Train</b>	<b>1</b>	<b>2</b>		<b>3</b>	<b>10</b>	
1. Describe general principles of operation as applied to fluid power transmissions. 2. Perform diagnosis and repair on torque converters 3. Perform diagnosis, service, and repair on power-shift transmissions. 4. Perform diagnosis and repair on hydrostatic transmissions.						
<b>DET 2513 Hydraulic/Hydrostats II</b>	<b>1</b>	<b>2</b>		<b>3</b>	<b>10</b>	
1. Understand hydrostatic theory. 2. Discuss pump identification and operation. 3. Understand motor identification and operation. 4. Understand the function and operation of hydraulic valves. 5. Discuss the function and operation of control valves. 6. Discuss cylinder identification and operation. 7. Understand accumulator identification and operation. 8. Identify fluid transfer components and filtering. 9. Demonstrate how to use the following test equipment: 10. Understand the load sensing systems and operation. 11. Discuss maintenance procedures. 12. Understand component repair and replacement. 13. Understand how to read hydraulic schematics. 14. Discuss the following diagnostics: check for hot spots, listen for high pressure leaks, test pump and motor internal leakage and low charge pressure, understand null adjustments.						
<b>DET 2383 Diesel Systems III</b>	<b>1</b>	<b>2</b>		<b>3</b>	<b>10</b>	
1. Explore and perform general engine diagnosis. 2. Explore fuel systems.						
					<b>Active Items</b>	<b>40</b>
					<b>Field-Test Items</b>	<b>10</b>
					<b>TOTAL ASSESSED ITEMS</b>	<b>50</b>