Information Systems Technology Blueprints

This document contains the 2012-2013 blueprints for the concentration areas in the postsecondary Information Systems Technology Cluster. The areas for this cluster are:

- Computer Networking Technology (21502Y2-2012)
- Computer Programming Technology (21501Y0-2012)
- Database Administration Technology (21503Y0-2012)
- Network Security Technology (21502Y2-2012)

Computer Networking Technology uses the following tests:

- Information Systems Technology (21521Y1-2012)
- Computer Networking Technology (21502Y2-2012)

Computer Programming Technology uses one test:

- Computer Programming Technology (21501Y0-2012)

Database Administration Technology uses one test:

- Database Administration Technology (21503Y0-2012)
- There are currently no programs in the state that use MS-CPAS for their assessment.

Network Security Technology uses the following tests:

- Information Systems Technology (21521Y1-2012)
- Network Security Technology (21502Y2-2012)

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MS-CPAS Blueprint Summary

Assessment: Information Systems Technology
Test Code: 21521Y1-2012
CIP Code: 110201,110802, 110901,111003
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: *(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-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.

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Assessment: Information Systems Technology Test Code: 21521Y1-2012 CIP Code: 110201,110802, 110901,111003 Total Hours: 14	DOK Level(s)	Instructional Hours	Total Items
IST 1124: IT Foundations		4	11
1. Install, configure, optimize, and upgrade personal computer components. 2. Install, configure, optimize, and upgrade laptops and portable devices. 3. Install and troubleshoot operating systems. 4. Install and troubleshoot printers and scanners. 5. Explore network technologies. 6. Identify security principles. 7. Apply safety and environmental procedures. 8. Practice proper communication skills, including listening and tact/discretion, when communicating with customers and colleagues. 9. Use job-related professional behavior, including notation of privacy, confidentiality, and respect for the customers and the customers' property. 10. Research new and emerging technology trends.			
IST 1134: Fundamentals of Data Communications		4	11
1. Examine career opportunities. 2. Discuss computer hardware components 3. Analyze communications networks. 4. Analyze network hardware and media. 5. Examine the ISO/OSI model. 6. Investigate physical topologies 7. Describe network transport systems. 8. Analyze TCP/IP protocols as they are used in a networking environment. 9. Apply methods for subnetting and IP binary conversion. 10. Evaluate and recommend methods to troubleshoot wiring. 11. Evaluate trends of network communication.			
IST 1143: Principles of Information Security		3	9
1. Define security basics. 2. Discuss security policies. 3. Classify security threats and attacks. 4. Discuss the basics of cryptography. 5. Summarize general security concepts.			
IST 1154: Web and Programming Concepts		4	11
1. Design a Web page using HTML. 2. Demonstrate client-side programming using CSS. 3. Use program design tools. 4. Discuss structured or modular programming. 5. Describe the philosophy of object-oriented programming. 6. Create applications using program development steps.			

IST 1163: Concepts of Database Design				**3**	**9**
1. Examine database management. 2. Create a database using specific criteria. 3. Update table structure and entities. 4. Query a database. 5. Construct queries using SQL. 6. Demonstrate printing and output techniques.					
				Active Items	**40**
				Field-Test Items	**10**
				TOTAL ASSESSED ITEMS	**50**

MS-CPAS Blueprint Summary

Assessment:	**Computer Networking Technology**
Test Code:	**21502Y2-2012**
CIP Code:	**110901**
Certificate:	**Technical**
Type:	**PS**

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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
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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: Computer Networking Technology Test Code: 21502Y2-2012 CIP Code: 110901 Total Hours: 8	DOK Level(s)	Instructional Hours	Total Items
IST 2224 Network Planning and Design		4	20
1. Perform analysis and design for developing a network. 2. Determine hardware design. 3. Determine software design. 4. Examine current network technologies. 5. Solve design cases.			
IST 2234 Network Implementation		4	20
1. Extend a local area network (LAN) to a wide area network (WAN). 2. Discuss solutions for IP address shortage. 3. Plan and implement a network solution.			
		Active Items	**40**
		Field-Test Items	**10**
		TOTAL ASSESSED ITEMS	**50**

MS-CPAS Blueprint Summary

Assessment: Computer Programming Technology
Test Code: 21501Y0-2012
CIP Code: 110201
Type: PS

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Assessment: Computer Programming Technology Test Code: 21501Y0-2012 CIP Code: 110201 Total Hours: 18	DOK Level(s)	Instructional Hours	Total Items
IST 1124 IT Foundations		4	9
1. Install, configure, optimize, and upgrade personal computer components. 2. Install, configure, optimize, and upgrade laptops and portable devices. 3. Install and troubleshoot operating systems. 4. Install and troubleshoot printers and scanners. 5. Explore network technologies. 6. Identify security principles. 7. Apply safety and environmental procedures. 8. Practice proper communication skills, including listening and tact/discretion when communicating with customers and colleagues. 9. Use job-related professional behavior, including notation of privacy, confidentiality, and respect for the customers and the customers' property. 10. Research new and emerging technology trends.			
IST 1134 Fundamentals of Data Communications		4	9
1. Examine career opportunities. 2. Discuss computer hardware components. 3. Analyze communications networks. 4. Analyze network hardware and media. 5. Examine the ISO/OSI model. 6. Investigate physical topologies. 7. Describe network transport systems. 8. Analyze TCP/IP protocol as they are used in a networking environment. 9. Apply methods for subnetting and IP binary conversion. 10. Evaluate and recommend methods to troubleshoot wiring. 11. Evaluate trends of network communication.			
IST 1143 Principles of Information Security		3	6
1. Define security basics. 2. Discuss security policies. 3. Classify security threats and attacks. 4. Discuss the basics of cryptography. 5. Summarize general security concepts.			
IST 1154 Web and Programming Concepts		4	9
1. Define a Web page using HTML. 2. Demonstrate client-side programming using CSS. 3. Use program design tools.			

Assessment: Computer Programming Technology Test Code: 21501Y0-2012 CIP Code: 110201 Total Hours: 18	DOK Level(s)	Instructional Hours	Total Items
4. Discuss structured or modular programming.			
5. Describe the philosophy of object-oriented programming. 6. Create applications using program development steps.			
IST 1163 Concepts of Database Design		**3**	**7**
1. Examine database management. 2. Create a database using specific criteria. 3. Update table structure and entities. 4. Query a database. 5. Construct queries using SQL. 6. Demonstrate printing and output techniques.			
		Active Items	**40**
		Field-Test Items	**10**
		TOTAL ASSESSED ITEMS	**50**

MS-CPAS Blueprint Summary

Assessment: Database Administration Technology
Test Code: 21503Y0-2012
CIP Code: 110802
Type: PS

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Assessment: Database Administration Technology Test Code: 21503Y0-2012 CIP Code: 110802 Total Hours: 19	DOK Level(s)	Instructional Hours	Total Items
IST Advanced SQL Programming		**3**	**10**
1. Use set operators. 2. Manipulate data in the database. 3. Create and manage tables. 4. Use constraints. 5. Create views. 6. Use other database objects in SQL. 7. Control user access.			
IST 1532 Database Architecture and Administration		**4**	**15**
1. Illustrate and examine the architectural components of a database. 2. Discuss how to install database software. 3. Explain how to create a database. 4. Manage a database connection. 5. Demonstrate how to retrieve information and the database and its users. 6. Use software tools to configured and manage the network environment for the database. 7. Manage database storage structures. 8. Administer user securities. 9. Manage data and concurrency. 10. Implement and maintain data integrity constraints.			
IST 2514 Advanced Database Architecture and Administration		**4**	**15**
1. Manage "undo" data. 2. Implement data security. 3. Perform database maintenance. 4. Discuss performance management. 5. Discuss backup and recovery concepts. 6. Describe and use methods to move data.			
IST 2524 Linux Operating Systems Fundamentals		**4**	**15**
1. Navigate and use the Linux file and directory system. 2. Manage users, groups, and system information. 3. Implement file and directory access permission. 4. Use the vi editor for editing text. 5. Demonstrate a project cost management.			
IST 2534 Project Management		**4**	**15**
1. Explain the need for project management within IT.			

Assessment:	Database Administration Technology	DOK Level(s)	Instructional Hours	Total Items
Test Code:	21503Y0-2012			
CIP Code:	110802			
Total Hours:	19			
2. Outline a project life cycle.				
3. Demonstrate a project scope management.				
4. Demonstrate project time management.				
5. Demonstrate project cost management.				
			Active Items	70
			Field-Test Items	10
			TOTAL ASSESSED ITEMS	80