

End of Course (EOC) Test Blueprints

Cybersecurity

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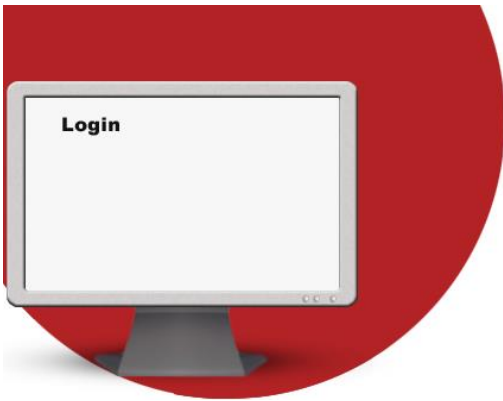
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About Test Blueprints

Test blueprints are created to provide guidance to Subject Matter Experts (SMEs) during the item writing phase of test development. In addition, we believe that they can assist those instructors who did not participate in item writing (and administrators) to understand the broad content of the item bank. Items are formally allocated across a course outline in a three-step process*:

1. CETE psychometricians use a formula which assumes that all competencies within a course outline are *essential* and of equal importance to produce a suggested test blueprint for review by Ohio Department of Education program specialists and SMEs.
2. SMEs are formed into small groups during item writing and focus on writing a specific EOC test. Once in small groups, SMEs review the course outline and associated test blueprint and have the ability to make revisions/changes to the blueprint with a persuasive rationale based on their experience and expertise.
3. The blueprints created during small group work must be approved by the larger/full panel of SMEs attending an item writing workshop, which is the last step and produces the final blueprint which is summarized here.



Test blueprints can provide high-level guidance to instructors on preparing students for testing. It is important to keep in mind that the blueprint is a tool that is used when developing the test item bank during initial item writing and test creation. As with all tests, the End-of-Course test forms are a sample of the item bank.

Interpreting the Blueprints

Test blueprints display the total number of test items SMEs planned to write to a particular *outcome* (as designated in the course outline created by the Ohio Department of Education Office of Career-Technical Education or by a vendor). The blueprint describes the item bank which is the total pool of test items created. Final test forms of 40-items are created from the item bank.

*This process for producing test blueprints was implemented October 1, 2015. All tests created prior to this date were done so under a different blueprint process and therefore will not have these blueprint reports available.

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Computer Hardware

ODE Subject Code: 145025

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	15.05
2.02	Networking Fundamentals	8.60
2.04	Emerging Technologies	4.30
2.06	Install and Configure	10.75
2.10	Equipment	10.75
2.11	Troubleshooting	13.98
2.12	Performance Tests and Acceptance Plans	7.53
2.13	Rollout and Handoff	6.45
Strand 3. Information Security		
3.05	Wireless Security	6.45
Strand 4. Infrastructure Systems		
4.03	Network Media	9.68
4.13	Disaster Recovery	6.45



Computer Software

ODE Subject Code: 145030

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	11.70
2.02	Networking Fundamentals	4.26
2.04	Emerging Technologies	6.38
2.05	Maintain Operating Systems	11.70
2.06	Installation and Configuration	7.45
2.10	Equipment	8.51
2.11	Troubleshooting	7.45
2.12	Performance Tests and Acceptance Plans	6.38
2.13	Rollout and Handoff	6.38
Strand 3. Information Security		
3.01	Components of Information Security	5.32
3.02	General Security Compliance	5.32
3.04	Multilayer Defense Structure	3.19
3.05	Wireless Security	7.45
Strand 4. Infrastructure Systems		
4.03	Network Media	5.32
4.13	Disaster Recovery	3.19



Cybersecurity

ODE Subject Code: 146005

Outcome #	Outcome Name	Items Approved by SMEs
Strand 1. Business Operations/21st Century Skills		
1.12	Cyber Hygiene	5.49
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	7.69
2.04	Emerging Technologies	3.30
Strand 3. Information Security		
3.01	Components of Information Security	6.59
3.02	General Security Compliance	3.30
3.03	Network Security	4.40
3.04	Multilayer Defense Structure	2.20
3.05	Wireless Security	5.49
Strand 4. Infrastructure Systems		
4.01	Network Infrastructure	5.49
4.02	Open Systems Interconnection	4.40
4.03	Network Media	7.69
4.04	Wireless Communications	3.30
4.05	Wireless Network Solutions	5.49
4.07	Transmission Control Protocol/Internet Protocol (TCP/IP)	5.49
Strand 9. Cybersecurity		
9.01	Cybersecurity	5.49
9.03	Application Development Security	4.40
9.05	Threat Management	5.49
9.07	Digital Forensics	5.49
9.08	Countermeasures	8.79



Cybersecurity Defense and Reinforcement

ODE Subject Code: 146010

Outcome #	Outcome Name	Items Approved by SMEs
Strand 1. Business Operations/21st Century Skills		
1.12	Cyber Hygiene	4.35
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	7.61
Strand 3. Information Security		
3.01	Components of Information Security	2.17
3.02	General Security Compliance	5.43
3.03	Network Security	3.26
3.04	Multilayer Defense Structure	2.17
3.05	Wireless Security	6.52
Strand 4. Infrastructure Systems		
4.05	Wireless Network Solutions	1.09
4.06	Network Protocols	2.17
4.11	Cloud Computing	1.09
4.13	Disaster Recovery	2.17
Strand 9. Cybersecurity		
9.01	Cybersecurity	5.43
9.02	Access Control and Asset Security	7.61
9.03	Application Development Security	6.52
9.04	Network Security	11.96
9.05	Threat Management	5.43
9.06	Cyber Law	2.17
9.07	Digital Forensics	5.43
9.08	Countermeasures	11.96
9.09	Disaster Recovery and Business Continuity	2.17
9.10	Risk Management	3.26



Cybersecurity Testing and Response

ODE Subject Code: 146015

Outcome #	Outcome Name	Items Approved by SMEs
Strand 1. Business Operations/21st Century Skills		
1.12	Cyber Hygiene	4.26
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	11.70
2.04	Emerging Technologies	4.26
Strand 3. Information Security		
3.01	Components of Information Security	4.26
3.02	General Security Compliance	3.19
3.03	Network Security	4.26
3.04	Multilayer Defense Structure	4.26
3.05	Wireless Security	9.57
Strand 4. Infrastructure Systems		
4.01	Network Infrastructure	4.26
4.02	Open Systems Interconnection	3.19
4.03	Network Media	2.13
4.04	Wireless Communications	2.13
4.05	Wireless Network Solutions	3.19
Strand 9. Cybersecurity		
9.01	Cybersecurity	6.38
9.03	Application Development Security	6.38
9.05	Threat Management	6.38
9.07	Digital Forensics	9.57
9.08	Countermeasures	6.38
9.10	Cybersecurity	4.26



Information Technology

ODE Subject Code: 145005

Outcome #	Outcome Name	Items Approved by SMEs
Strand 1. Business Operations/21st Century Skills		
1.01	Employability Skills	8.89
1.02	Leadership and Communication	8.89
1.03	Business Ethics and Law	7.78
1.04	Knowledge Management and Information Technology	6.67
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	11.11
2.02	Networking Fundamentals	6.67
2.03	Data Encoding	2.22
2.04	Emerging Technologies	3.33
2.05	Maintain Operating Systems	5.56
2.06	Install and Configuration	5.56
2.07	Web Architecture	7.78
2.08	Databases	6.67
2.09	Project and Concept Proposal	5.56
2.10	Equipment	6.67
2.11	Troubleshooting	6.67



Network Management

ODE Subject Code: 145045

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.04	Emerging Technologies	4.21
2.09	Project Concept Proposal	2.11
2.10	Equipment	2.11
2.11	Troubleshooting	7.37
2.13	Rollout and Handoff	1.05
Strand 3. Information Security		
3.01	Components of Information Security	5.26
3.02	General Security Compliance	8.42
3.03	Network Security	10.53
3.04	Multilayer Defense Structure	3.16
3.05	Wireless Security	6.32
Strand 4. Learning Environments		
4.01	Network Infrastructure	2.11
4.02	Open Systems Interconnection	4.21
4.03	Network Media	4.21
4.04	Wireless Communications	3.16
4.05	Wireless Network Solutions	2.11
4.06	Network Protocols	3.16
4.07	Transmission Control Protocol/Internet Protocol (TCP/IP)	7.37
4.08	Network Architecture	2.11
4.09	Network Operating Systems	5.26
4.10	Network Administration	7.37
4.12	Wide Area Network	5.26
4.13	Disaster Recovery	3.16



Network Operating Systems

ODE Subject Code: 145040

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	6.32
2.02	Network Fundamentals	9.47
2.03	Alphanumeric Encoding	1.05
2.04	Emerging Technologies	3.16
2.10	Equipment	6.32
2.11	Troubleshooting	5.26
2.12	Performance Tests and Acceptance Plans	4.21
2.13	Rollout and Handoff	6.32
Strand 3. Information Security		
3.02	Security Compliance	4.21
3.03	Network Security	5.26
3.04	Multilayer Defense Structure	3.16
Strand 4. Infrastructure Systems		
4.01	Network Infrastructure	4.21
4.06	Network Protocols	6.32
4.07	Transmission Control Protocol/Internet Protocol (TCP/IP)	12.63
4.08	Network Architecture	2.11
4.09	Network Operating Systems	8.42
4.10	Network Administration	8.42
4.13	Disaster Recovery	3.16



Network Security

ODE Subject Code: 145050

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	15.79
2.10	Equipment	4.21
2.11	Troubleshooting	8.42
2.12	Performance Tests and Acceptance Plans	2.11
Strand 3. Information Security		
3.01	Components of Information Security	5.26
3.02	General Security Compliance	10.53
3.03	Network Security	7.37
3.04	Multilayer Defense Structure	5.26
3.05	Wireless Security	6.32
Strand 4. Infrastructure Systems		
4.04	Wireless Communications	3.16
4.05	Wireless Network Solutions	6.32
4.06	Network Protocols	8.42
4.09	Network Operating Systems	3.16
4.10	Network Administration	11.58
4.13	Disaster Recovery	2.11



Networking

ODE Subject Code: 145035

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.01	Security, Risks, and Safeguards	8.42
2.02	Network Fundamentals	12.63
2.04	Emerging Technologies	6.32
2.07	Web Architecture	3.16
2.09	Project Concept Proposal	3.16
2.10	Equipment	5.26
2.11	Troubleshooting	2.11
2.12	Performance Tests and Acceptance Plans	5.26
2.13	Rollout and Handoff	4.21
Strand 3. Information Security		
3.02	General Security Compliance	4.21
3.03	Network Security	5.26
3.05	Wireless Security	3.16
Strand 4. Infrastructure Systems		
4.01	Network Infrastructure	5.26
4.02	Open Systems Interconnection	4.21
4.03	Network Media	5.26
4.04	Wireless Communications	2.11
4.05	Wireless Network Solutions	3.16
4.06	Network Protocols	3.16
4.07	Transmission Control Protocol/Internet Protocol (TCP/IP)	5.26
4.08	Network Architecture	2.11
4.09	Network Operating Systems	4.21
4.13	Disaster Recovery	2.11



Programming

ODE Subject Code: 145060

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.03	Data Encoding	2.27
2.09	Project Concept Proposal	6.82
2.11	Troubleshooting	2.27
2.12	Performance Tests and Acceptance Plans	4.55
2.13	Rollout and Handoff	4.55
Strand 5. Programming and Software Systems		
5.01	Programming Concepts	14.77
5.02	Computational and String Operations	15.91
5.03	Logical Operations and Control Structures	19.32
5.04	Integrated Development Environment	6.82
5.05	Programming Conventions	10.23
5.06	Software Development Lifecycle	6.82
5.07	Configuration/Change Management	5.68



Routing and Switching

ODE Subject Code: 145055

Outcome #	Outcome Name	Items Approved by SMEs
Strand 2. IT Fundamentals		
2.02	Networking Fundamentals	3.16
2.03	Alphanumeric Encoding	1.05
2.10	Equipment	3.16
2.11	Troubleshooting	7.37
Strand 3. Information Security		
3.01	Components of Information Security	3.16
3.03	Network Security	8.42
3.05	Wireless Security	3.16
Strand 4. Infrastructure Systems		
4.01	Network Infrastructure	2.11
4.02	Open Systems Interconnection	9.47
4.03	Network Media	6.32
4.04	Wireless Communications	1.05
4.05	Wireless Network Solutions	6.32
4.06	Network Protocols	8.42
4.07	Transmission Control Protocol/Internet Protocol (TCP/IP)	9.47
4.08	Network Architecture	5.26
4.10	Network Administration	6.32
4.12	Wide Area Network	14.74
4.13	Disaster Recovery	1.05

