

## End of Course (EOC) Bank Blueprints

## Horticulture

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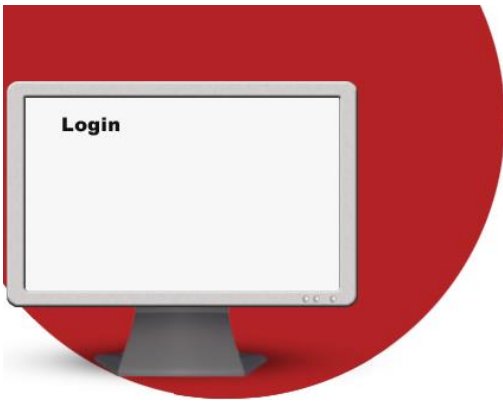
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### About Test Blueprints

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 review the blueprint as a large group before item writing for a specific EOC test. There and in small groups, SMEs review the course outline and have the ability to make changes to the blueprint with a documented rationale based on their experience and expertise.
3. Any revisions during small group work must be approved by the larger panel of SMEs attending an item writing workshop, which is the last step and produces the final blueprint which is summarized in this document.



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). Blueprints describe the structure of 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 newer process for producing test blueprints was implemented October 1, 2015. Item banks created prior to this date were completed under a different blueprint process and therefore we are looking backward to provide the structure of the item bank. As revisions are completed for those career fields, for example Information Technology (2017-18), the blueprint process used will be the newer model.

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# Agriculture Food and Natural Resources

ODE Subject Code: 010105

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.2.	Leadership and Communications	2.22
1.4.	Knowledge Management and Information Technology	1.11
1.6.	Business Literacy	1.11
1.9.	Financial Management	2.22
1.12.	Site and Personal Safety Procedures	8.89
<b>Strand 2. Animal Science</b>		
2.3.	Care and Management	13.33
<b>Strand 3. Biotechnology</b>		
3.1.	Handling, Preparation, Storage and Disposal	3.33
3.4.	Molecular-Genetics Technology	5.56
3.6.	Culturing	3.33
<b>Strand 4. Power Systems</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	1.11
4.3.	Engines	5.56
<b>Strand 5. Structural Engineering</b>		
5.3.	Design and Estimate	3.33
5.6.	Construction	5.56
5.10.	Joining and Cutting Metals with Heat	3.33
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	11.11
6.2.	Water Quality	3.33
6.11	Habitat Management and Restoration	3.33
<b>Strand 7. Food Sciences</b>		
7.2.	Quality Assurance	3.33
7.5.	Food Product Development	3.33
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	4.44
8.4.	Growth and Management	5.56
<b>Strand 9. Energy</b>		
9.1.	Energy	5.56



# Plant and Horticulture Science

ODE Subject Code: 010155

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	8.70
1.2.	Leadership and Communications	7.61
1.3.	Business Ethics and Law	3.26
1.4.	Knowledge Management and Information Technology	3.26
1.6.	Business Literacy	2.17
1.9.	Financial Management	2.17
1.10.	Sales and Marketing	3.26
<b>Strand 5. Structural Engineering</b>		
5.8.	Water Distribution Systems	5.43
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	9.78
6.2.	Water Quality	5.43
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	10.87
8.2.	Plant Reproduction	7.61
8.3.	Pest Management	10.87
8.4.	Growth and Management	8.70
8.5.	Harvesting	9.78
8.6.	Handling and Storage	1.09



# Floral Design and Marketing

ODE Subject Code: 010625

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	8.70
1.2.	Leadership and Communications	6.52
1.3.	Business Ethics and Law	4.35
1.4.	Knowledge Management and Information Technology	3.26
1.6.	Business Literacy	4.35
1.8.	Operations Management	7.61
1.10.	Sales and Marketing	10.87
1.12.	Site and Personal Safety Procedures:	3.26
<b>Strand 4. Power Systems</b>		
4.2.	Equipment Operations	3.26
<b>Strand 5. Structural Engineering</b>		
5.3.	Design and Estimate	19.57
<b>Strand 6. Environmental Science</b>		
6.9.	Hazardous Materials and Waste Management	3.26
<b>Strand 8. Plant Science</b>		
8.3.	Pest Management	4.35
8.4.	Growth and Management	5.43
8.5.	Harvesting	6.52
8.6.	Handling and Storage	8.70



# Landscape Design

ODE Subject Code: 010630

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	3.16
1.2.	Leadership and Communications	4.21
1.3.	Business Ethics and Law	2.11
1.4.	Knowledge Management and Information Technology	2.11
1.6.	Business Literacy	3.16
1.8.	Operations Management	3.16
1.9.	Financial Management	3.16
1.10.	Sales and Marketing	3.16
1.12.	Site and Personal Safety Procedures:	7.37
<b>Strand 5. Structural Engineering</b>		
5.1.	Electrical Theory	5.26
5.3.	Design and Estimate	17.89
5.4.	Surveying and Mapping	8.42
5.7.	Brick, Block and Concrete	3.16
5.8.	Water Distribution Systems	3.16
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	3.16
6.2.	Water Quality	4.21
6.10.	Ecosystems	3.16
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	7.37
8.3.	Pest Management	3.16
8.4.	Growth and Management	9.47



# Landscape Hardscapes

ODE Subject Code: 010640

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.2.	Leadership and Communications	1.06
1.10.	Sales and Marketing	4.26
1.12.	Site and Personal Safety Procedures	5.32
<b>Strand 4. Power Systems</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	7.45
4.2.	Equipment Operations	5.32
<b>Strand 5. Structural Engineering</b>		
5.1.	Electrical Theory	3.19
5.2.	Structural Electrical Circuits	4.26
5.3.	Design and Estimate	19.15
5.4.	Surveying and Mapping	6.38
5.6.	Construction	3.19
5.7.	Brick, Block and Concrete	4.26
5.8.	Water Distribution Systems	3.19
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	6.38
6.2.	Water Quality	5.32
6.10.	Ecosystems	7.45
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	3.19
8.3.	Pest Management	5.32
8.4.	Growth and Management	5.32



# Landscape Systems Management

ODE Subject Code: 010615

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	5.32
1.2.	Leadership and Communications	3.19
1.3.	Business Ethics and Law	1.06
1.4.	Knowledge Management and Information Technology	3.19
1.6.	Business Literacy	3.19
1.9.	Financial Management	1.06
1.10.	Sales and Marketing	2.13
1.12	Site and Personal Safety Procedures	7.45
<b>Strand 4. Power Systems</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	12.77
4.2.	Equipment Operations	6.38
4.3.	Engines	7.45
4.4.	Lubrication and Cooling Systems	3.19
4.5.	Fuel, Air Induction and Exhaust System	1.06
4.7.	Transmission of Power	2.13
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	2.13
6.8.	Contaminants and Pollution Control	3.19
6.10.	Ecosystems	2.13
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	5.32
8.2.	Plant Reproduction	2.13
8.3.	Pest Management	6.38
8.4.	Growth and Management	9.57
8.5.	Harvesting	3.19
8.6.	Handling and Storage	6.38





# Greenhouse and Nursery Management

ODE Subject Code: 010610

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	11.83
1.2.	Leadership and Communications	1.08
1.4.	Knowledge Management and Information Technology	2.15
1.6.	Business Literacy	3.23
1.8.	Operations Management	3.23
1.9.	Financial Management	2.15
1.10.	Sales and Marketing	5.38
1.12.	Site and Personal Safety Procedures	3.23
<b>Strand 3. Biotechnology</b>		
3.8.	Research and Experiments	2.15
<b>Strand 5. Structural Engineering</b>		
5.1.	Electrical Theory	3.23
5.2.	Structural Electrical Circuits	2.15
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	4.30
6.2.	Water Quality	3.23
6.7.	Solid Waste and Renewable Resource Management	3.23
<b>Strand 7. Food Sciences</b>		
7.7.	Biosecurity	3.23
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	12.90
8.2.	Plant Reproduction	6.45
8.3.	Pest Management	6.45
8.4.	Growth and Management	15.05
8.5.	Harvesting	2.15
8.6.	Handling and Storage	3.23



# Turf Science & Management

ODE Subject Code: 010635

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	1.06
1.2.	Leadership and Communications	2.13
1.3.	Business Ethics and Law	3.19
1.4.	Knowledge Management and Information Technology	3.19
1.9.	Financial Management	1.06
1.10.	Sales and Marketing	2.13
1.12.	Site and Personal Safety Procedures	6.38
<b>Strand 4. Power Systems</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	11.70
4.2.	Equipment Operations	7.45
<b>Strand 5. Structural Engineering</b>		
5.3.	Design and Estimate	5.32
5.8.	Water Distribution Systems	9.57
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	10.64
6.2.	Water Quality	4.26
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	10.64
8.2.	Plant Reproduction	1.06
8.3.	Pest Management	9.57
8.4.	Growth and Management	10.64



# Business Management for Agricultural and Environmental Systems

ODE Subject Code: 010115

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	12.64
1.2.	Leadership and Communications	13.79
1.3.	Business Ethics and Law	5.75
1.4.	Knowledge Management and Information Technology	4.60
1.5.	Global Environment	1.15
1.6.	Business Literacy	14.94
1.7.	Entrepreneurship/Entrepreneurs	8.05
1.8.	Operations Management	10.34
1.9.	Financial Management	17.24
1.10.	Sales and Marketing	6.90
<b>Strand 7. Food Sciences</b>		
7.7.	Biosecurity	4.60



## Urban Forestry

ODE Subject Code: 010740

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.1.	Employability Skills	6.19
1.2.	Leadership and Communications	5.15
1.3.	Business Ethics and Law	2.06
1.4.	Knowledge Management and Information Technology	1.03
1.6.	Business Literacy	2.06
1.8.	Operations Management	1.03
1.9.	Financial Management	1.03
1.10.	Sales and Marketing	2.06
1.12.	Site and Personal Safety Procedures	8.25
<b>Strand 4. Structural Engineering</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	14.43
4.2.	Equipment Operations	5.15
<b>Strand 5. Structural Engineering</b>		
5.3.	Design and Estimate	2.06
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	8.25
6.10.	Ecosystems	3.09
<b>Strand 8. Plant Science</b>		
8.1.	Plant Nutrition	7.22
8.3.	Pest Management	14.43
8.4.	Growth and Management	18.56



## Park & Recreational Management

ODE Subject Code: 010735

Outcome #	Outcome Name	% Items Approved by SMEs
<b>Strand 1. Business Operations/21st Century Skills</b>		
1.4.	Knowledge Management and Information Technology	7.14
1.6.	Business Literacy	5.71
1.8.	Operations Management	4.29
1.10.	Sales and Marketing	5.71
1.12.	Site and Personal Safety Procedures	8.57
<b>Strand 2. Animal Science</b>		
2.3.	Care and Management	2.86
<b>Strand 4. Power Systems</b>		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	10.00
4.2.	Equipment Operations	7.14
<b>Strand 5. Structural Engineering</b>		
5.3.	Design and Estimate	8.57
5.4.	Surveying and Mapping	7.14
5.6.	Construction	1.43
<b>Strand 6. Environmental Science</b>		
6.1.	Soils	5.71
6.8.	Contaminants and Pollution Control	4.29
6.9.	Hazardous Materials and Waste Management	2.86
6.10.	Ecosystems	12.86
6.11.	Habitat Management and Restoration	2.86
<b>Strand 7. Food Sciences</b>		
7.7.	Biosecurity	1.43
<b>Strand 8. Plant Science</b>		
8.4.	Growth and Management	1.43

