



End of Course (EOC) Bank Blueprints

Industrial Power Technology

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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 In Bank
Strand 1. Business Operations/21st Century Skills		
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
Strand 2. Animal Science		
2.3.	Care and Management	13.33
Strand 3. Biotechnology		
3.1.	Handling, Preparation, Storage and Disposal	3.33
3.4.	Molecular-Genetics Technology	5.56
3.6.	Culturing	3.33
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	1.11
4.3.	Engines	5.56
Strand 5. Structural Engineering		
5.3.	Design and Estimate	3.33
5.6.	Construction	5.56
5.10.	Joining and Cutting Metals with Heat	3.33
Strand 6. Environmental Science		
6.1.	Soils	11.11
6.2.	Water Quality	3.33
6.11	Habitat Management and Restoration	3.33
Strand 7. Food Sciences		
7.2.	Quality Assurance	3.33
7.5.	Food Product Development	3.33
Strand 8. Plant Science		
8.1.	Plant Nutrition	4.44
8.4.	Growth and Management	5.56
Strand 9. Energy		
9.1.	Energy	5.56



Agricultural & Industrial Power

ODE Subject Code: 010210

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	2.06
1.2.	Leadership and Communications	7.22
1.3.	Business Ethics and Law	3.09
1.4.	Knowledge Management and Information Technology	1.03
1.6.	Business Literacy	1.03
1.8.	Operations Management	1.03
1.10.	Sales and Marketing	2.06
1.12	Site and Personal Safety Procedures	5.15
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	10.31
4.2.	Equipment Operations	3.09
4.3.	Engines	12.37
4.4.	Lubrication and Cooling Systems	6.19
4.5.	Fuel, Air Induction and Exhaust System	5.15
4.6.	Ignition System	2.06
4.7.	Transmission of Power	4.12
4.8.	Starting and Charging Systems	2.06
4.9.	Steering, Suspension and Traction	4.12
4.11.	Hydraulic Systems	7.22
4.12.	Brakes	1.03
Strand 5. Structural Engineering		
5.1.	Electrical Theory	3.09
5.9.	Physics and Metallurgy of Welding	4.12
5.10.	Joining and Cutting Metals with Heat	7.22
5.11.	Fabricating with Cold Metals	5.15



Electronic & Electrical Systems

ODE Subject Code: 010215

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	2.86
1.2.	Leadership and Communications	3.81
1.3.	REQUIRED Business Ethics and Law	1.90
1.4.	REQUIRED Knowledge Management and Information Technology.	7.62
1.6.	REQUIRED Business Literacy	1.90
1.8.	OPTIONAL Operations Management	1.90
1.10.	OPTIONAL Sales and Marketing	1.90
1.12.	Site and Personal Safety Procedures	10.48
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	9.52
4.3.	Engines	2.86
4.6.	Ignition System	8.57
4.8.	Starting and Charging Systems	7.62
Strand 5. Structural Engineering		
5.1.	Electrical Theory	39.05



Engines and Fuel Systems

ODE Subject Code: 010220

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	2.11
1.2.	Leadership and Communications	10.53
1.3.	Business Ethics and Law	4.21
1.4.	Knowledge Management and Information Technology	4.21
1.10.	Business Literacy	1.05
1.12.	Operations Management	6.32
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	11.58
4.2.	Equipment Operations	4.21
4.3.	Engines	12.63
4.4.	Lubrication and Cooling Systems	10.53
4.5.	Fuel, Air Induction and Exhaust System	17.89
4.6.	Ignition System	9.47
4.8.	Starting and Charging Systems	5.26



Hydraulics and Pneumatics

ODE Subject Code: 010225

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.42
1.2.	Leadership and Communications	3.42
1.3.	Business Ethics and Law	3.42
1.4.	Knowledge Management and Information Technology	2.56
1.6.	Operations Management	1.71
1.8.	Operations Management	1.71
1.10.	Sales and Marketing	1.71
1.12.	Site and Personal Safety Procedures	17.09
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	9.40
4.2.	Equipment Operations	1.71
4.11.	Hydraulic Systems	47.01
4.12.	Brakes	3.42
Strand 6. Environmental Science		
6.8.	Contaminants and Pollution Control	1.71
6.9.	Hazardous Materials and Waste Management	1.71



Outdoor Power Technology

ODE Subject Code: 010235

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.23
1.2.	Leadership and Communications	3.23
1.3.	Business Ethics and Law	3.23
1.4.	Knowledge Management and Information Technology	3.23
1.6.	Business Literacy	3.23
1.8.	Operations Management	2.15
1.10.	Sales and Marketing	3.23
1.12.	Site and Personal Safety Procedures	3.23
Strand 4. Biotechnology (should be Power Systems)		
4.1.	Research and Experiments (NOT valid)	10.75
4.2.	Equipment Operations	3.23
4.3.	Engines	11.83
4.4.	Lubrication and Cooling Systems	3.23
4.5.	Fuel, Air Induction and Exhaust System	6.45
4.6.	Ignition System	1.08
4.7.	Transmission of Power	1.08
4.8.	Starting and Charging Systems	2.15
4.11.	Hydraulic Systems	9.68
Strand 5. Structural Engineering		
5.1.	Electrical Theory	10.75
5.10.	Joining and Cutting Metals with Heat	9.68
5.11	Fabricating with Cold Metals	3.23
Strand 6. Environmental Science		
6.8.	Contaminants and Pollution Control	2.15



Power Sports

ODE Subject Code: 010240

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.4.	Knowledge Management and Information Technology	2.60
1.6.	Business Literacy	5.19
1.10.	Sales and Marketing	3.90
1.12.	Site and Personal Safety Procedures	11.69
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	3.90
4.2.	Equipment Operations	1.30
4.3.	Engines	6.49
4.4.	Lubrication and Cooling Systems	9.09
4.5.	Fuel, Air Induction and Exhaust System	14.29
4.6.	Ignition System	9.09
4.7.	Transmission of Power.	7.79
4.8.	Starting and Charging Systems	5.19
4.9.	Steering, Suspension and Traction	6.49
4.11.	Hydraulic Systems	6.49
4.12.	Brakes	6.49

Business Management for Agricultural and Environmental Systems

ODE Subject Code: 010115

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
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
Strand 7. Food Sciences		
7.7.	Biosecurity	4.60



Power Trains

ODE Subject Code: 010230

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	7.53
1.2.	Leadership and Communications	3.23
1.3.	Business Ethics and Law	3.23
1.4.	Knowledge Management and Information Technology	5.38
1.6.	Business Literacy	2.15
1.8.	Operations Management	2.15
1.10.	Sales and Marketing	5.38
1.12.	Site and Personal Safety Procedures	11.83
Strand 4. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance	7.53
4.2.	Equipment Operations	4.30
4.7.	Transmission of Power	31.18
4.10.	Drive Axle Universal and Differential	16.13

