

End of Course (EOC) Bank Blueprints

Ground Transportation

Table of Contents

Table of Contents	1
About Test Blueprints.....	2
Ground Transportation Maintenance	3
Ground Transportation Engine and Power Train.....	4
Ground Transportation Electrical/Electronics	5
Automotive Braking, Suspension, and Steering Systems.....	6
Ground Transportation HVAC.....	7
Truck Braking, Suspension, and Steering Systems.....	8
Automotive Engine Performance.....	9
Truck Diesel Engines.....	10
Sports/Recreational Power Systems.....	11
Collision Electrical & Mechanical Systems.....	12
Collision Structural Inspection & Repair	13
Collision Nonstructural Inspection & Repair	14
Collision Painting & Refinishing.....	15
Outdoor Power Technology	16
Hydraulics and Pneumatics.....	17

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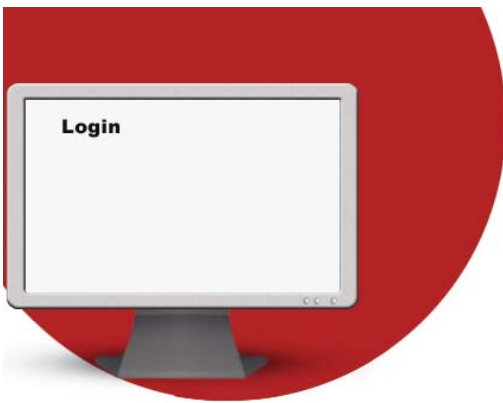




About Test Blueprints

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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Ground Transportation Maintenance

ODE Subject Code: 177000

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.49
1.2.	Leadership and Communications	3.49
1.3.	Business Ethics and Law	3.49
1.4.	Knowledge Management and Information Technology	3.49
1.5.	Global Environment	2.33
1.6.	Business Literacy	3.49
1.9.	Financial Management	3.49
Strand 2. Safety, Tools, and Maintenance		
2.1.	Facility Safety	5.81
2.2.	Personal Safety	5.81
2.3.	Tool and Equipment Preventive Maintenance	5.81
2.4.	General Maintenance	12.79
Strand 3. Engine Adjustments and Repair		
3.5.	Lubrication and Cooling Systems	8.14
Strand 4. Systems Performance		
4.6.	Batteries	9.30
4.8.	Lighting and Accessories	12.79
Strand 5. Drivetrain		
5.1.	Automatic Transmission and Transaxle Performance	3.49
5.8.	Wheels and Tires	12.79



Ground Transportation Engine and Power Train

ODE Subject Code: 177001

Outcome #	Outcome Name	% Items In Bank
Strand 1. Career Development		
1.1.	Employability Skills	5.95
1.2.	Leadership and Communications	5.95
1.3.	Business Ethics and Law	5.95
1.4.	Knowledge Management and Information Technology	7.14
1.5.	Global Environment	4.76
1.6.	Business Literacy	3.57
1.8.	Operations Management	3.57
1.10.	Sales and Marketing	3.57
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	3.57
2.2.	Personal Safety	3.57
2.3.	Tool and Equipment Preventive Maintenance	9.52
Strand 3. Engine Adjustments and Repair		
3.1.	Engine Cylinder Head and Block Assemblies	15.48
3.5.	Lubrication and Cooling Systems	7.14
Strand 5. Drivetrain		
5.1.	Automatic Transmission and Transaxle Performance	3.57
5.2.	Manual Transmission and Transaxle	3.57
5.3.	Clutches	7.14
5.4.	Drive Axle Universal and Differentials	5.95



Ground Transportation Electrical/Electronics

ODE Subject Code: 177002

Outcome #	Outcome Name	% Items In Bank
Strand 1. Career Development		
1.1.	Employability Skills	3.61
1.2.	Leadership and Communications	3.61
1.3.	Business Ethics and Law	3.61
1.4.	Knowledge Management and Information Technology	3.61
1.5.	Global Environment	3.61
1.6.	Business Literacy	3.61
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	6.02
2.2.	Personal Safety	3.61
2.3.	Tool and Equipment Preventive Maintenance	4.82
2.4.	General Maintenance	6.02
Strand 4. Systems Performance		
4.5.	Electrical and Electronic Systems	25.30
4.6.	Batteries	8.43
4.7.	Starting and Charging Systems	13.25
4.8.	Lighting and Accessories	10.84



Automotive Braking, Suspension, and Steering Systems

ODE Subject Code: 177003

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1	Employability Skills	4.71
1.2.	Leadership and Communications	1.18
1.3	Business Ethics and Law	2.35
1.4.	Knowledge Management and Information Technology	1.18
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	5.88
2.2.	Personal Safety	3.53
2.3.	Tool and Equipment Preventive Maintenance	7.06
2.4.	General Maintenance	3.53
Strand 4. Systems Performance		
4.1.	Hydraulic Brake Systems	10.59
4.2.	Drum and Disc	12.94
4.4.	Antilock Brakes	10.59
Strand 5. Drivetrain		
5.5.	Steering	7.06
5.6.	Suspension	12.94
5.7.	Wheel Alignment	5.88
5.8.	Wheels and Tires	10.59



Ground Transportation HVAC

ODE Subject Code: 177004

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	6.67
1.2.	Leadership and Communication	6.67
1.3.	Business Ethics and Law	17.78
1.4.	Knowledge Management and Information Technology	6.67
1.5.	Global Environment	13.33
1.6.	Business Literacy	6.67
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	11.11
2.2.	Personal Safety	6.67
2.3.	Tool and Equipment Preventive Maintenance	20.00
2.4.	General Maintenance	31.11
Strand 4. Systems Performance		
4.9.	Heating, Ventilation and Air Conditioning Systems	73.33



Truck Braking, Suspension, and Steering Systems

ODE Subject Code: 177005

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	4.76
1.2.	Leadership and Communications	3.57
1.3.	Business Ethics and Law	4.76
1.4.	Knowledge Management and Information Technology	3.57
1.5.	Global Environment	2.38
1.6.	Business Literacy	3.57
1.8.	Operations Management	3.57
1.10.	Sales and Marketing	3.57
Strand 2. Safety, Tools, and Maintenance		
2.1.	Facility Safety	3.57
2.2.	Personal Safety	3.57
2.3.	Tool and Equipment Preventive Maintenance	4.76
2.4.	General Maintenance	3.57
Strand 4. Systems Performance		
4.2.	Drum and Disc	8.33
4.3.	Air Brake Systems	10.71
Strand 5. Drivetrain		
5.5.	Steering	8.33
5.6.	Suspension	7.14
5.7.	Wheel Alignment	8.33
5.8.	Wheels and Tires	11.90



Automotive Engine Performance

ODE Subject Code: 177006

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.53
1.2.	Leadership and Communications	9.41
1.3.	Business Ethics and Law	8.24
1.4.	Knowledge Management and Information Technology	3.53
Strand 2. Safety, Tools, and Maintenance		
2.2.	Personal Safety	4.71
2.4.	General Maintenance	2.35
Strand 3. Engine Adjustments and Repair		
3.2.	Computerized Engine Controls	16.47
3.3.	Ignition System	15.29
3.4.	Fuel, Air induction and Exhaust System	36.47



Truck Diesel Engines

ODE Subject Code: 177007

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.53
1.2.	Leadership and Communications	4.71
1.3.	Business Ethics and Law	5.88
1.4.	Knowledge Management and Information Technology	4.71
1.5.	Global Environment	4.71
1.6.	Business Literacy	2.35
1.8.	Operations Management	1.18
1.10.	Sales and Marketing	1.18
Strand 2. Safety, Tools, and Maintenance		
2.1.	Facility Safety	4.71
2.2.	Personal Safety	5.88
2.3.	Tool and Equipment Preventive Maintenance	8.24
2.4.	General Maintenance	10.59
Strand 3. Engine Adjustments and Repair		
3.1.	Engine Cylinder Head and Block Assemblies	11.76
3.2.	Computerized Engine Controls	7.06
3.3.	Ignition System	5.88
3.4.	Fuel, Air induction and Exhaust System	10.59
3.5.	Lubrication and Cooling Systems	7.06



Sports/Recreational Power Systems

ODE Subject Code: 177008

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.57
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	5.95
2.2.	Personal Safety	3.57
2.3.	Tool and Equipment Preventive Maintenance	14.29
2.4.	General Maintenance	22.62
Strand 3. Engine Adjustments and Repair		
3.1.	Engine Cylinder Head and Block Assemblies	14.29
3.3.	Ignition System	3.57
3.4.	Fuel, Air induction and Exhaust System	13.10
3.5.	Lubrication and Cooling Systems	2.38
Strand 5. Drivetrain		
5.1.	Automatic Transmission and Transaxle Performance	5.95
5.3.	Clutches	2.38
5.4.	Drive Axle Universal and Differentials	1.19
5.6.	Suspension	1.19
5.8.	Wheels and Tires	5.95



Collision Electrical & Mechanical Systems

ODE Subject Code: 177009

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skills		
1.1.	Employability Skills	3.70
1.2	Leadership and Communication	2.47
1.3.	Business Ethics and Law	2.47
1.4.	Knowledge Management and Information Technology	2.47
1.6.	Business Literacy	2.47
1.10.	Sales and Marketing	4.94
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	9.88
2.2.	Personal Safety	4.94
2.3.	Tool and Equipment Preventive Maintenance	3.70
2.4.	General Maintenance	6.17
Strand 4: Systems Performance		
4.1.	Hydraulic Brake Systems	3.70
4.2.	Drum and Disc	7.41
4.4.	Antilock Brakes	4.94
4.5.	Electrical and Electronic Systems	13.58
4.6.	Batteries	4.94
4.8.	Lighting and Accessories	4.94
Strand 5: Drivetrain		
5.5.	Steering	4.94
5.6.	Suspension	11.11
5.7	Wheel Alignment	1.23



Collision Structural Inspection & Repair

ODE Subject Code: 177010

Outcome #	Outcome Name	% Items In Bank
Strand 1. Career Development		
1.1.	Employability Skills	4.71
1.2.	Leadership and Communications	3.53
1.3.	Business Ethics and Law	3.53
1.4.	Knowledge Management and Information Technology	3.53
1.5.	Global Environment	2.35
1.6.	Business Literacy	2.35
1.8.	Operations Management	3.53
1.10.	Sales and Marketing	3.53
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	14.12
2.2.	Personal Safety	15.29
2.3.	Tool and Equipment Preventive Maintenance	9.41
Strand 6. Body and Frames		
6.1.	Structural	14.12
6.3.	Joining and Cutting Metals	20.00



Collision Nonstructural Inspection & Repair

ODE Subject Code: 177011

Outcome #	Outcome Name	% Items In Bank
Strand 1. Business Operations/21st Century Skill		
1.1.	Employability Skills	3.26
1.2.	Leadership and Communications	4.35
1.3.	Business Ethics and Law	5.43
1.4.	Knowledge Management and Information Technology	3.26
1.5.	Global Environment	2.17
1.6.	Business Literacy	3.26
1.8.	Operations Management	3.26
1.10.	Sales and Marketing	3.26
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	2.17
2.2.	Personal Safety	7.61
2.3.	Tool and Equipment Preventive Maintenance	14.13
Strand 6. Body and Frames		
6.2.	Nonstructural	25.00
6.4.	Plastics and Adhesives	10.87
6.5.	Surface Preparation	11.96



Collision Painting & Refinishing

ODE Subject Code: 177012

Outcome #	Outcome Name	% Items In Bank
Strand 1. Career Development		
1.1.	Employability Skills	3.90
1.2.	Leadership and Communications	7.79
1.3.	Business Ethics and Law	10.39
1.4.	Knowledge Management and Information Technology	3.90
1.5.	Global Environment	5.19
1.6.	Business Literacy	3.90
1.10.	Sales and Marketing	1.30
Strand 2. Safety, Tools and Maintenance		
2.1.	Facility Safety	10.39
2.2.	Personal Safety	7.79
2.3.	Tool and Equipment Preventive Maintenance	6.49
Strand 6. Body and Frames		
6.5.	Surface Preparation	22.08
6.6.	Paint Preparation and Application	16.88



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. Power Systems		
4.1.	Tool, Stationary and Mobile Equipment Maintenance:	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



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

