

Examination: Report title: Exams administered: Examinees included:

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Jul 01—Nov 30, 2014 First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:	University of Kentucky, Lexington		
Major:	Agricultural	PE Examination:	Civil-Transportation

	Institution	ABET Comparator ²	
No. Examinees Taking ¹	1	2	
No. Examinees Passing	0	1	
Percent Examinees Passing	0%	50%	
	Institution	ABET	ARET

	Number of Exam Questions	Average Percent Correct	Comparator Average Percent Correct	Comparator Standard Deviation ³
Construction	8	75.0	75.0	0.0
Geotechnical	8	75.0	81.3	0.5
Structural	8	25.0	25.0	0.0
Transportation	8	50.0	62.5	1.0
Water Resources & Environmental	8	50.0	62.5	1.0
Traffic Analysis	9	44.4	61.1	1.5
Geometric Design	12	58.3	62.5	0.5
Transportation Planning	3	33.3	50.0	0.5
Traffic Safety	6	66.7	66.7	0.0
Other Topics	10	30.0	40.0	1.0

1. <u>**0**</u> examinees have been removed from this data because they were flagged as a random guesser.

2. Comparator includes all examinees from programs accredited by the ABET commission noted.

3. The standard deviation is based on number of questions correct, not percentage of questions correct.

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Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Jul 01—Nov 30, 2014 First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:	University of Kentucky, Lexington			
Major:	Chemical	PE Examination:	Chemical	

	Institution	ABET Comparator ²
No. Examinees Taking ¹	3	176
No. Examinees Passing	2	132
Percent Examinees Passing	67%	75%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Mass Energy Balances and Thermodynamics: Mass Balances	8	62.5	61.5	1.9
Mass Energy Balances and Thermodynamics: Energy Balances and Thermodynamics	10	50.0	63.0	1.9
Heat Transfer: Mechanisms	7	71.4	64.7	1.3
Heat Transfer: Applications	6	50.0	62.4	1.4
Kinetics: Reaction Parameters	5	53.3	56.9	1.2
Kinetics: Reactors	4	41.7	57.8	1.1
Fluids: Mechanical-Energy Balance	10	80.0	67.0	2.0
Fluids: Flow and Pressure Measurement Techniques	3	77.8	69.2	0.9
Mass Transfer: Phase Equilibria	4	50.0	67.5	1.1
Mass Transfer: Continuous Vapor-Liquid Contactors	6	22.2	49.4	1.4
Mass Transfer: Miscellaneous Mass Transfer Processes	1	66.7	87.9	0.3
Plant Design and Operation: Economic Considerations	1	66.7	77.0	0.4
Plant Design and Operation: Design	8	45.8	65.7	1.7
Plant Design and Operation: Operation	3	44.4	62.6	0.8
Plant Design and Operation: Safety; Health; and Environment	4	41.7	69.8	0.9

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Report title:

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Exams administered: Jul 01-Nov 30, 2014 Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington		
Major:	Civil	PE Examination:	Civil-Construction	

	Institution	ABET Comparator ²
No. Examinees Taking ¹	8	513
No. Examinees Passing	3	302
Percent Examinees Passing	38%	59%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Construction	8	65.6	78.5	1.3
Geotechnical	8	65.6	72.7	1.5
Structural	8	57.8	73.2	1.5
Transportation	8	64.1	66.1	1.6
Water Resources & Environmental	8	56.3	67.6	1.7
Earthwork Construction & Layout	4	56.3	66.3	1.0
Estimating Quantities & Costs	7	58.9	61.7	1.6
Construction Operations & Methods	6	62.5	69.4	1.3
Scheduling	7	62.5	69.4	1.5
Material Quality Control & Production	4	81.3	81.7	0.9
Temporary Structures	5	47.5	46.6	1.3
Worker - Health & Safety & Environment	3	54.2	64.3	0.8
Other Topics	4	40.6	50.8	1.0
			5510	2.0

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Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Exams administered: Jul 01-Nov 30, 2014 Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington		
Major:	Civil	PE Examination:	Civil-Geotechnical	

	Institution	ABET Comparator ²
No. Examinees Taking ¹	4	286
No. Examinees Passing	1	192
Percent Examinees Passing	25%	67%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Construction	8	75.0	75.5	1.3
Geotechnical	8	71.9	78.8	1.4
Structural	8	71.9	79.5	1.4
Transportation	8	68.8	70.8	1.5
Water Resources & Environmental	8	59.4	72.3	1.6
Subsurface Exploration & Sampling	3	66.7	82.3	0.7
Engineering Properties of Soils & Materials	5	55.0	76.6	1.0
Soil Mechanics Analysis	5	45.0	61.5	1.1
Earthquake Engineering	2	75.0	56.5	0.7
Earth Structures	4	56.3	60.5	1.1
Shallow Foundations	6	37.5	55.0	1.4
Earth Retaining Structures Including Temporary Structures	7	67.9	61.8	1.4
Deep Foundations	4	43.8	58.2	1.1
Other Topics	4	75.0	70.8	1.1

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Report title:

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Exams administered: Jul 01-Nov 30, 2014 Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:	University of Kentucky, Lexington		
Major:	Civil	PE Examination:	Civil-Structural

	Institution	ABET Comparator ²	
No. Examinees Taking ¹	6	622	
No. Examinees Passing	5	481	
Percent Examinees Passing	83%	77%	

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Construction	8	81.3	81.5	1.3
Geotechnical	8	79.2	80.6	1.4
Structural	8	87.5	88.0	1.1
Transportation	8	70.8	72.9	1.5
Water Resources & Environmental	8	75.0	76.0	1.5
Loadings	5	66.7	72.7	1.1
Analysis	5	93.3	82.5	1.0
Mechanics of Materials	5	46.7	42.8	1.2
Materials	5	63.3	64.4	1.1
Member Design	10	58.3	50.1	1.9
Design Criteria	5	46.7	44.5	1.0
OtherTopics	5	90.0	72.2	1.1

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Examination:Principles and PReport title:Subject Matter FExams administered:Jul 01-Nov 30,Examinees included:First-Time Exam

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Jul 01—Nov 30, 2014 First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington			
Major:	Civil PE Examination: Civil-Transportation				

		Institution	ABET Comparator ²	
No. Examinees Taking ¹		11	811	
No. Examinees Passing		7	552	
Percent Examinees Passing		64%	68%	
	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Construction	8	70.5	74.2	1.3
Geotechnical	8	67.0	70.0	1.5
Structural	8	59.1	70.9	1.5
Transportation	8	75.0	76.4	1.5
Water Resources & Environmental	8	63.6	69.1	1.6
Traffic Analysis	9	66.7	69.7	1.6
Geometric Design	12	57.6	62.8	2.0
Transportation Planning	3	54.5	61.4	0.9
Traffic Safety	6	71.2	65.5	1.3

Other Topics

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10

64.5

66.9

1.9



Examination:Principles and Practice of Engineering (PE)Report title:Subject Matter Report by Major and ExaminationExams administered:Jul 01—Nov 30, 2014Examinees included:First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington				
Major:	Civil	PE Examination:	Civil-Water Resources and Environmental			

	Institution	ABET Comparator ²
No. Examinees Taking ¹	3	643
No. Examinees Passing	2	474
Percent Examinees Passing	67%	74%

Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
8	75.0	76.0	1.3
8	70.8	72.2	1.6
8	66.7	72.6	1.5
8	70.8	71.5	1.6
8	75.0	79.6	1.4
6	61.1	59.3	1.4
6	77.8	73.7	1.3
6	88.9	80.9	1.0
3	88.9	88.6	0.5
6	55.6	54.9	1.3
6	61.1	61.6	1.3
6	66.7	69.3	1.3
1	66.7	80.4	0.4
	of Exam Questions 8 8 8 8 8 8 8 8 8 8 8 6 6 6 6 6 3 6 6 6 6	Number of Exam Questions Average Percent Correct 8 75.0 8 70.8 8 66.7 8 70.8 8 70.8 8 66.7 8 70.8 6 61.1 6 88.9 3 88.9 6 55.6 6 61.1 6 61.1 6 55.6 6 61.1 6 61.1	Number of Exam QuestionsInstitution Average Percent CorrectComparator Average Percent Correct875.076.0870.872.2866.772.6870.871.5875.079.6661.159.3677.873.7688.980.9388.988.6655.654.9661.161.6666.769.3

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Examination: Principles and Practice of Engineering (PE) **Report title:** Exams administered: Jul 01-Nov 30, 2014 Examinees included:

Subject Matter Report by Major and Examination First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:	University of Kentucky, Lexington			
Major:	Civil PE Examination: Environmental			

	Institution	ABET Comparator ²
No. Examinees Taking ¹	1	43
No. Examinees Passing	0	22
Percent Examinees Passing	0%	51%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Water: Basic Principles	4	100.0	68.6	1.0
Water: Wastewater	10	50.0	60.2	1.8
Water: Stormwater	4	75.0	70.3	1.1
Water: Potable Water	10	60.0	60.0	2.1
Water: Water Resources	4	50.0	49.4	1.1
Solid Waste: Basic Principles	3	66.7	61.2	0.9
Solid Waste: Municipal and Industrial Solid Waste	6	50.0	67.1	1.2
Solid Waste: Hazardous Waste	6	50.0	57.0	1.3
Solid Waste: Medical; Radioactive; Other Waste	3	66.7	64.3	0.7
Air: Basic Principles	7	14.3	43.2	1.2
Air: Pollution Control	16	43.8	72.4	2.5
Site Assessment and Remediation: Basic Principles	4	75.0	62.2	1.1
Site Assessment and Remediation: Site Assessment	3	66.7	70.5	0.7
Site Assessment and Remediation: Remediation	5	100.0	62.3	1.2
Environmental Health and Safety: Environmental Health and Safety	8	37.5	71.2	1.3
Associated Engineering Principles: Associated Engineering Principles	7	14.3	61.1	1.6

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Name of Institution:		University of Kentucky, Lexington				
Major:	Civil	PE Examination:	Mining and Mineral Processing			

	Institution	ABET Comparator ²
No. Examinees Taking ¹	2	3
No. Examinees Passing	2	3
Percent Examinees Passing	100%	100%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Exploration: Apply exploration methods & techniques	3	83.3	77.8	0.5
Exploration: Characterize site geologic & geotechnical conditions	3	50.0	33.3	0.8
Exploration: Estimate & characterize & evaluate resource reserves	4	37.5	41.7	0.5
Mine Planning & Operations: Plan & design & implement mining methods and layouts	8	81.3	75.0	1.4
Mine Planning & Operations: Plan & design & select and-or construct mine equipment and facilities and systems	13	57.7	51.3	1.7
Mine Planning & Operations: Evaluate & design ground control	7	50.0	47.6	0.5
Mine Planning & Operations: Operate & manage mines & systems	4	62.5	75.0	0.8
Mineral Processing: Perform laboratory & pilot testing and analysis	4	50.0	41.7	0.9
Mineral Processing: Design & evaluate process flow sheets	9	27.8	29.6	0.5
Mineral Processing: Plan & design & select and-or construct plant equipment and facilities and systems	7	50.0	42.9	1.4
Mineral Processing: Operate & manage plants & facilities	4	75.0	58.3	1.2
Environment & Reclamation: Characterize site & mining & process environment	4	75.0	66.7	0.9
Environment & Reclamation: Plan & design to mitigate exploration & mining & processing impacts	5	70.0	80.0	0.8
Environment & Reclamation: Operate & manage environmental & reclamation plan	3	33.3	44.4	0.5
Environment & Reclamation: Close & reclaim the site	2	25.0	33.3	0.5

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Name of Institution:	University of Kentucky, Lexington		
Major:	Electrical	PE Examination:	Control Systems

	Institution	ABET Comparator ²
No. Examinees Taking ¹	1	91
No. Examinees Passing	1	71
Percent Examinees Passing	100%	78%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Measurement: Measurement	16	87.5	65.7	2.4
Signals; Transmission; and Networking: Signals	4	100.0	76.1	0.9
Signals; Transmission; and Networking: Transmission	4	100.0	84.9	0.9
Signals; Transmission; and Networking: Networking	4	25.0	64.0	0.9
Final Control Elements: Valves	7	57.1	62.3	1.4
Final Control Elements: Pressure Relieving Devices	3	66.7	46.5	0.8
Final Control Elements: Motor Controls	4	100.0	86.0	0.9
Final Control Elements: Other Final Control Elements	2	100.0	83.0	0.5
Control Systems: Drawings	4	50.0	74.7	0.9
Control Systems: Theory	6	83.3	70.9	1.2
Control Systems: Implementation	8	75.0	71.7	1.4
Safety Systems: Basic documentation	2	100.0	75.8	0.6
Safety Systems: Theory	4	50.0	59.1	1.0
Safety Systems: Implementation	6	83.3	75.3	1.2
Codes; Standards; and Regulations: Codes; Standards; and Regulations	6	66.7	71.2	1.2

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Name of Institution:		University of Kentucky, Lexington			
Major:	Electrical	PE Examination:	Electrical and Computer: Power		

	Institution	ABET Comparator ²
No. Examinees Taking ¹	9	530
No. Examinees Passing	7	329
Percent Examinees Passing	78%	62%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
General Power Engineering: Measurement & Instrumentation	6	66.7	68.7	1.1
General Power Engineering: Special Applications	8	63.9	66.0	1.6
General Power Engineering: Codes & Standards	10	55.6	58.4	1.7
Circuit Analysis: Analysis	9	70.4	62.5	1.8
Circuit Analysis: Devices & Power Electronic Circuits	7	65.1	70.5	1.5
Rotating Machines & Electromagnetic Devices: Rotating Machines	10	71.1	60.5	1.9
Rotating Machines & Electromagnetic Devices: Electromagnetic Devices	6	70.4	57.2	1.4
Transmissions & Distribution: System Analysis	10	77.8	58.6	2.0
Transmissions & Distribution: Power System Performance	6	63.0	52.9	1.2
Transmissions & Distribution: Protection	8	66.7	63.9	1.4

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Name of Institution:		University of Kentucky, Lexington				
Major:	Materials	PE Examination:	Metallurgical and Materials			

	Institution	ABET Comparator ²
No. Examinees Taking ¹	1	9
No. Examinees Passing	0	6
Percent Examinees Passing	0%	67%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Foundation Topics: Statistics	4	25.0	58.3	0.9
Foundation Topics: Physical-Engineering Sciences	9	66.7	46.9	1.7
Foundation Topics: Mechanics of Materials	3	33.3	55.6	1.1
Foundation Topics: Process Fundamentals	10	60.0	58.9	1.5
Structure & Properties: Structure-Phase-Transformations	8	62.5	62.5	1.1
Structure & Properties: Mechanical Properties of Metals & Materials	8	25.0	51.4	2.0
Structure & Properties: Applications & Specifications of Metal & Materials Selection	8	37.5	65.3	1.6
Processing: Heat Treatments	6	50.0	61.1	0.7
Processing: Surface Modification	4	50.0	58.3	0.8
Processing: Forming & Fabrication	7	42.9	66.7	1.1
Performance: Material Testing	6	16.7	57.4	1.1
Performance: Material Degradation	6	33.3	48.1	1.7
Performance: Waste Process Control & Environmental Impact	1	100.0	100.0	0.0

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Name of Institution:		University of Kentucky, Lexington			
Major:	Mechanical	PE Examination:	Mechanical-HVAC and Refrigeration		

	Institution	ABET Comparator ²
No. Examinees Taking ¹	3	344
No. Examinees Passing	2	268
Percent Examinees Passing	67%	78%

	Questions	Percent Correct	Average Percent Correct	Comparator Standard Deviation ³
Basic Engineering Practice: Basic Engineering Practice	12	66.7	76.4	1.9
lechanical Systems & Materials: Principles	5	46.7	32.1	1.2
Aechanical Systems & Materials: Applications	3	33.3	59.4	0.9
lydraulic & Fluids: Principles	3	66.7	73.6	0.8
lydraulic & Fluids: Applications	4	66.7	73.5	1.0
nergy & Power Systems: Principles	3	66.7	63.5	0.9
nergy & Power Systems: Applications	3	44.4	54.7	0.9
IVAC & Refrigeration: Principles	4	100.0	88.0	0.8
IVAC & Refrigeration: Applications	3	77.8	71.0	0.8
Principles: Thermodynamics	3	33.3	42.6	0.8
Principles: Psychrometrics	6	44.4	49.6	1.2
Principles: Heat Transfer	5	60.0	48.7	1.3
Principles: Fluid Mechanics	3	44.4	69.3	0.8
Principles: Compressible Flow	1	33.3	46.8	0.5
Principles: Energy Balances	4	75.0	69.2	1.0
Applications: Equipment and Components	8	66.7	61.1	1.7
Applications: Systems	7	47.6	54.9	1.4
Applications: Supportive Knowledges	3	66.7	74.0	0.7

1. **O** examinees have been removed from this data because they were flagged as a random guesser.

2. Comparator includes all examinees from programs accredited by the ABET commission noted.

3. The standard deviation is based on number of questions correct, not percentage of questions correct.

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Report title:

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Exams administered: Jul 01-Nov 30, 2014 Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington			
Major:	Mechanical	PE Examination:	Mechanical-Thermal and Fluids Systems		

	Institution	ABET Comparator ²
No. Examinees Taking ¹	2	336
No. Examinees Passing	1	241
Percent Examinees Passing	50%	72%

	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Basic Engineering Practice: Basic Engineering Practice	12	66.7	78.0	1.8
Mechanical Systems & Materials: Principles	5	30.0	39.4	1.2
Mechanical Systems & Materials: Applications	3	16.7	66.8	0.8
Hydraulic & Fluids: Principles	3	66.7	79.2	0.7
Hydraulic & Fluids: Applications	4	75.0	78.0	1.0
Energy & Power Systems: Principles	3	83.3	60.5	0.9
Energy & Power Systems: Applications	3	50.0	62.7	0.9
HVAC & Refrigeration: Principles	4	100.0	81.8	0.9
HVAC & Refrigeration: Applications	3	66.7	60.5	0.8
Principles: Materials Properties (density)	2	25.0	47.8	0.7
Principles: Fluid Mechanics	4	50.0	74.3	0.9
Principles: Heat Transfer Principles (convection)	4	75.0	59.1	1.1
Principles: Mass Balance Principles (evaporation)	3	50.0	43.9	0.8
Principles: Thermodynamics	4	50.0	43.8	1.1
Principles: Related Principles	1	50.0	68.2	0.5
Applications: Equipment	7	42.9	61.0	1.7
Applications: Systems	13	65.4	59.7	2.4
Applications: Codes & Standards	2	75.0	79.2	0.6

1. **O** examinees have been removed from this data because they were flagged as a random guesser.

2. Comparator includes all examinees from programs accredited by the ABET commission noted.

3. The standard deviation is based on number of questions correct, not percentage of questions correct.

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Examination: **Report title:**

Principles and Practice of Engineering (PE) Subject Matter Report by Major and Examination Exams administered: Jul 01-Nov 30, 2014 Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		University of Kentucky, Lexington			
Major:	Mining/Mineral	PE Examination:	Mining and Mineral Processing		

No. Examinees Taking ¹ No. Examinees Passing Percent Examinees Passing		Institution 21 16 76%	ABET Comparator² 62 55 89%	
	Number of Exam Questions	Institution Average Percent Correct	ABET Comparator Average Percent Correct	ABET Comparator Standard Deviation ³
Exploration: Apply exploration methods & techniques	3	56.7	61.2	0.9
Exploration: Characterize site geologic & geotechnical conditions	3	45.0	55.7	0.8
Exploration: Estimate & characterize & evaluate resource reserves	4	52.5	55.7	0.9
Mine Planning & Operations: Plan & design & implement mining methods and layouts	8	64.4	71.5	1.6
Mine Planning & Operations: Plan & design & select and-or construct mine equipment and facilities and systems	13	65.0	66.7	1.8
Mine Planning & Operations: Evaluate & design ground control	7	65.0	70.0	1.2
Mine Planning & Operations: Operate & manage mines & systems	4	55.0	60.2	1.0
Mineral Processing: Perform laboratory & pilot testing and analysis	4	47.5	51.2	1.0
Mineral Processing: Design & evaluate process flow sheets	9	58.9	56.3	1.9
Mineral Processing: Plan & design & select and-or construct plant equipment and facilities and systems	7	50.7	53.6	1.2
Mineral Processing: Operate & manage plants & facilities	4	63.8	63.5	1.0
Environment & Reclamation: Characterize site & mining & process environment	4	45.0	47.1	0.9
Environment & Reclamation: Plan & design to mitigate exploration & mining & processing impacts	5	55.0	60.7	1.0
Environment & Reclamation: Operate & manage environmental & reclamation plan	3	53.3	55.7	0.8
Environment & Reclamation: Close & reclaim the site	2	77.5	76.2	0.6

1. <u>1</u> examinees have been removed from this data because they were flagged as a random guesser.

2. Comparator includes all examinees from programs accredited by the ABET commission noted.

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