

**Examination:** Fundamentals of Engineering (FE)  
**Report title:** Subject Matter Report by Major and Examination  
**Exams administered:** Jan 01—May 31, 2015  
**Examinees included:** First-Time Examinees from EAC/ABET-Accredited Engineering Programs  
**Graduation Date:** Examinees Testing within 12 months of Graduation Date

Name of Institution:	<b>University of Kentucky, Lexington</b>		
Major:	<b>Agricultural</b>	FE Examination:	<b>Environmental</b>

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	2	25
No. Examinees Passing	2	20
Percent Examinees Passing	100%	80%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 0.71
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics	4	7.7	9.3	3.7	0.83	-0.43
Probability and Statistics	3	11.6	8.4	4.6	1.38	0.70
Ethics and Professional Practice	5	8.2	10.1	3.0	0.81	-0.63
Engineering Economics	4	9.8	9.0	2.6	1.09	0.31
Materials Science	3	8.0	8.8	3.9	0.91	-0.21
Environmental Science and Chemistry	11	10.1	9.0	1.7	1.12	0.65
Risk Assessment	5	7.8	9.9	3.0	0.79	-0.70
Fluid Mechanics	9	9.5	9.3	1.9	1.02	0.11
Thermodynamics	3	11.7	12.0	3.5	0.98	-0.09
Water Resources	10	10.2	10.1	2.2	1.01	0.05
Water and Wastewater	14	7.7	8.7	1.3	0.89	-0.77
Air Quality	10	8.5	8.8	1.3	0.97	-0.23
Solid and Hazardous Waste	10	8.4	9.1	1.2	0.92	-0.58
Groundwater and Soils	9	9.2	9.0	1.6	1.02	0.13

- 0 examinees have been removed from this data because they were flagged as a random guesser.
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- Performance index is based on a 0-15 scale.
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Name of Institution:	University of Kentucky, Lexington		
Major:	Agricultural	FE Examination:	Other Disciplines

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	3	30
No. Examinees Passing	3	28
Percent Examinees Passing	100%	93%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> $\pm 0.58$
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics and Advanced Engineering Mathematics	12	9.5	9.6	1.8	0.99	-0.06
Probability and Statistics	6	12.1	10.3	2.4	1.17	0.75
Chemistry	7	11.8	10.4	2.7	1.13	0.52
Instrumentation and Data Acquisition	4	12.0	10.9	2.9	1.10	0.38
Ethics and Professional Practice	3	15.0	13.4	2.9	1.12	0.55
Safety, Health, and Environment	4	10.8	9.9	2.8	1.09	0.32
Engineering Economics	7	13.2	9.9	2.4	1.33	1.38
Statics	8	9.6	10.0	1.9	0.96	-0.21
Dynamics	7	10.0	10.2	2.3	0.98	-0.09
Strength of Materials	8	9.5	10.8	2.3	0.88	-0.57
Materials Science	6	10.6	9.8	1.8	1.08	0.44
Fluid Mechanics and Dynamics of Liquids	8	13.6	10.3	2.7	1.32	1.22
Fluid Mechanics and Dynamics of Gases	4	10.9	11.0	3.3	0.99	-0.03
Electricity, Power, and Magnetism	7	13.5	10.6	2.5	1.27	1.16
Heat, Mass, and Energy Transfer	9	10.8	10.1	1.4	1.07	0.50

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

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	1	747
No. Examinees Passing	1	578
Percent Examinees Passing	100%	77%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 1.00
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics	8	7.4	10.7	3.1	0.69	-1.06
Probability and Statistics	4	6.5	10.7	3.5	0.61	-1.20
Engineering Sciences	4	10.2	10.4	3.4	0.98	-0.06
Computational Tools	4	15.0	10.6	3.4	1.42	1.29
Materials Science	4	9.7	10.4	3.3	0.93	-0.21
Chemistry	8	10.0	10.7	3.1	0.93	-0.23
Fluid Mechanics/Dynamics	8	8.9	9.9	2.3	0.90	-0.43
Thermodynamics	8	9.8	9.5	2.0	1.03	0.15
Material/Energy Balances	8	10.7	9.5	2.3	1.13	0.52
Heat Transfer	8	8.6	10.0	2.5	0.86	-0.56
Mass Transfer and Separation	8	9.8	9.4	2.0	1.04	0.20
Chemical Reaction Engineering	8	8.8	9.3	2.2	0.95	-0.23
Process Design and Economics	8	9.5	9.5	2.8	1.00	0.00
Process Control	5	9.2	9.4	3.0	0.98	-0.07
Safety, Health, and Environment	5	15.0	9.4	3.4	1.60	1.65
Ethics and Professional Practice	2	15.0	11.1	5.4	1.35	0.72

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Name of Institution:	<b>University of Kentucky, Lexington</b>		
Major:	<b>Civil</b>	FE Examination:	<b>Civil</b>

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	38	4,377
No. Examinees Passing	29	3,084
Percent Examinees Passing	76%	70%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 0.16
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics	7	10.3	9.9	2.9	1.04	0.14
Probability and Statistics	4	11.1	10.3	3.4	1.08	0.24
Computational Tools	4	10.3	10.2	3.6	1.01	0.03
Ethics and Professional Practice	4	11.1	10.9	3.7	1.02	0.05
Engineering Economics	4	10.6	10.3	3.7	1.03	0.08
Statics	7	9.5	9.7	2.7	0.98	-0.07
Dynamics	4	10.1	10.1	3.3	1.00	0.00
Mechanics of Materials	7	8.7	9.2	2.2	0.95	-0.23
Materials	4	9.9	9.4	3.1	1.05	0.16
Fluid Mechanics	4	11.3	10.5	3.6	1.08	0.22
Hydraulics and Hydrologic Systems	8	9.6	9.1	2.1	1.05	0.24
Structural Analysis	6	8.9	9.1	2.5	0.98	-0.08
Structural Design	6	7.9	8.9	2.5	0.89	-0.40
Geotechnical Engineering	9	9.4	9.1	2.0	1.03	0.15
Transportation Engineering	8	9.4	9.1	2.3	1.03	0.13
Environmental Engineering	6	9.6	9.3	2.7	1.03	0.11
Construction	4	9.8	9.9	3.7	0.99	-0.03
Surveying	4	10.0	8.7	3.7	1.15	0.35

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Major:	<b>Civil</b>	FE Examination:	<b>Environmental</b>

	<b>Institution</b>	<b>ABET Comparator<sup>2</sup></b>
No. Examinees Taking <sup>1</sup>	1	104
No. Examinees Passing	1	73
Percent Examinees Passing	100%	70%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 1.00
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	<b>Number of Exam Questions</b>	<b>Institution Average Performance Index <sup>3</sup></b>	<b>ABET Comparator Average Performance Index</b>	<b>ABET Comparator Standard Deviation</b>	<b>Ratio Score <sup>4</sup></b>	<b>Scaled Score <sup>4</sup></b>
Mathematics	4	8.0	10.0	3.7	0.80	-0.54
Probability and Statistics	3	15.0	10.3	3.1	1.46	1.52
Ethics and Professional Practice	5	15.0	11.0	3.3	1.36	1.21
Engineering Economics	4	8.5	10.3	3.5	0.83	-0.51
Materials Science	3	8.7	10.3	3.6	0.84	-0.44
Environmental Science and Chemistry	11	8.7	9.5	2.4	0.92	-0.33
Risk Assessment	5	15.0	10.4	3.2	1.44	1.44
Fluid Mechanics	9	10.8	9.3	1.7	1.16	0.88
Thermodynamics	3	15.0	11.0	3.6	1.36	1.11
Water Resources	10	15.0	9.9	2.5	1.52	2.04
Water and Wastewater	14	8.7	9.3	1.6	0.94	-0.38
Air Quality	10	8.8	9.3	2.1	0.95	-0.24
Solid and Hazardous Waste	10	9.3	9.2	2.0	1.01	0.05
Groundwater and Soils	9	9.3	9.1	2.5	1.02	0.08

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Name of Institution:		<b>University of Kentucky, Lexington</b>	
Major:	<b>Electrical</b>	FE Examination:	<b>Electrical and Computer</b>

	<b>Institution</b>	<b>ABET Comparator<sup>2</sup></b>
No. Examinees Taking <sup>1</sup>	3	1,019
No. Examinees Passing	3	768
Percent Examinees Passing	100%	75%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 0.58
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	<b>Number of Exam Questions</b>	<b>Institution Average Performance Index <sup>3</sup></b>	<b>ABET Comparator Average Performance Index</b>	<b>ABET Comparator Standard Deviation</b>	<b>Ratio Score <sup>4</sup></b>	<b>Scaled Score <sup>4</sup></b>
Mathematics	11	9.3	10.0	2.5	0.93	-0.28
Probability and Statistics	4	12.6	10.1	3.4	1.25	0.74
Ethics and Professional Practice	3	15.0	11.8	4.0	1.27	0.80
Engineering Economics	3	10.6	9.5	4.2	1.12	0.26
Properties of Electrical Materials	4	9.2	9.9	3.4	0.93	-0.21
Engineering Sciences	6	11.4	11.0	3.3	1.04	0.12
Circuit Analysis (DC and AC Steady State)	10	12.0	9.6	2.3	1.25	1.04
Linear Systems	5	10.5	9.4	2.8	1.12	0.39
Signal Processing	5	9.3	9.3	2.9	1.00	0.00
Electronics	7	11.2	9.4	2.2	1.19	0.82
Power	8	10.5	9.5	2.1	1.11	0.48
Electromagnetics	5	11.8	10.0	2.9	1.18	0.62
Control Systems	6	8.6	9.3	2.6	0.92	-0.27
Communications	5	10.3	9.3	2.7	1.11	0.37
Computer Networks	3	8.8	9.6	4.2	0.92	-0.19
Digital Systems	7	10.9	9.1	2.4	1.20	0.75
Computer Systems	4	10.9	9.1	3.4	1.20	0.53
Software Development	4	15.0	10.9	4.1	1.38	1.00

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Name of Institution: <b>University of Kentucky, Lexington</b>	
Major: <b>Mechanical</b>	FE Examination: <b>Mechanical</b>

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	10	3,105
No. Examinees Passing	9	2,564
Percent Examinees Passing	90%	83%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 0.32
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics	6	9.3	10.6	2.9	0.88	-0.45
Probability and Statistics	4	9.3	10.0	3.2	0.93	-0.22
Computational Tools	3	12.7	11.1	4.1	1.14	0.39
Ethics and Professional Practice	3	11.7	11.6	3.9	1.01	0.03
Engineering Economics	3	10.3	10.7	4.0	0.96	-0.10
Electricity and Magnetism	3	11.6	11.1	3.6	1.05	0.14
Statics	8	9.0	9.8	2.4	0.92	-0.33
Dynamics, Kinematics, and Vibrations	9	9.0	9.7	2.1	0.93	-0.33
Mechanics of Materials	8	9.0	9.6	2.2	0.94	-0.27
Material Properties and Processing	8	10.1	9.7	2.1	1.04	0.19
Fluid Mechanics	9	9.4	9.9	2.2	0.95	-0.23
Thermodynamics	13	9.2	9.4	1.5	0.98	-0.13
Heat Transfer	9	10.1	9.6	2.2	1.05	0.23
Measurements, Instrumentation, and Controls	5	9.5	9.2	3.1	1.03	0.10
Mechanical Design and Analysis	9	9.0	9.1	2.3	0.99	-0.04

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Name of Institution: <b>University of Kentucky, Lexington</b>	
Major: <b>Mining/Mineral</b>	FE Examination: <b>Other Disciplines</b>

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	9	77
No. Examinees Passing	6	59
Percent Examinees Passing	67%	77%

<b>Uncertainty Range for Scaled Score <sup>4</sup></b> ± 0.33
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	Number of Exam Questions	Institution Average Performance Index <sup>3</sup>	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score <sup>4</sup>	Scaled Score <sup>4</sup>
Mathematics and Advanced Engineering Mathematics	12	9.1	9.0	1.9	1.01	0.05
Probability and Statistics	6	9.3	9.3	2.1	1.00	0.00
Chemistry	7	10.0	9.6	2.2	1.04	0.18
Instrumentation and Data Acquisition	4	8.8	9.1	2.7	0.97	-0.11
Ethics and Professional Practice	3	14.2	12.0	4.0	1.18	0.55
Safety, Health, and Environment	4	10.8	10.3	3.4	1.05	0.15
Engineering Economics	7	9.8	10.1	2.5	0.97	-0.12
Statics	8	9.0	9.0	1.7	1.00	0.00
Dynamics	7	9.5	9.0	2.3	1.06	0.22
Strength of Materials	8	9.0	9.1	1.7	0.99	-0.06
Materials Science	6	9.2	9.2	1.9	1.00	0.00
Fluid Mechanics and Dynamics of Liquids	8	9.8	9.5	1.9	1.03	0.16
Fluid Mechanics and Dynamics of Gases	4	9.0	9.0	3.2	1.00	0.00
Electricity, Power, and Magnetism	7	8.4	9.0	1.9	0.93	-0.32
Heat, Mass, and Energy Transfer	9	8.2	9.0	1.7	0.91	-0.47

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