

Examination:	Fundamentals of Engineering (FE)
Report title:	Subject Matter Report by Major and Examination
Exams administered:	Jan 01—Jun 30, 2017
Examinees included:	First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date:	Examinees Testing within 12 months of Graduation Date

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>	4	48
No. Examinees Passing	4	40
Percent Examinees Passing	100%	83%

	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	8.3	8.8	1.9	0.94	-0.26
Probability and Statistics	6	8.2	9.8	2.5	0.84	-0.64
Chemistry	7	9.0	10.0	2.2	0.90	-0.45
Instrumentation and Data Acquisition	4	11.9	9.8	2.7	1.21	0.78
Ethics and Professional Practice	3	13.3	11.7	3.6	1.14	0.44
Safety, Health, and Environment	4	12.0	10.4	3.3	1.15	0.48
Engineering Economics	7	12.7	9.8	2.7	1.30	1.07
Statics	8	9.0	10.0	2.1	0.90	-0.48
Dynamics	7	9.7	9.5	1.9	1.02	0.11
Strength of Materials	8	6.9	9.5	2.4	0.73	-1.08
Materials Science	6	8.3	9.6	2.6	0.86	-0.50
Fluid Mechanics and Dynamics of Liquids	8	9.6	10.2	2.3	0.94	-0.26
Fluid Mechanics and Dynamics of Gases	4	9.3	9.8	2.6	0.95	-0.19
Electricity, Power, and Magnetism	7	8.8	9.9	2.1	0.89	-0.52
Heat, Mass, and Energy Transfer	9	9.2	9.4	1.6	0.98	-0.13

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

3. Performance index is based on a 0-15 scale.

4. These scores are made available for assessment purposes. See the NCEES publication entitled

Using the FE as an Outcomes Assessment Tool at http://ncees.org/licensure/educator-resources/.

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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>	4	970
No. Examinees Passing	2	720
Percent Examinees Passing	50%	74%

	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	8.8	10.3	3.0	0.85	-0.50
Probability and Statistics	4	13.8	10.3	3.3	1.34	1.06
Engineering Sciences	4	11.1	10.0	3.5	1.11	0.31
Computational Tools	4	9.5	9.9	3.4	0.96	-0.12
Materials Science	4	12.3	9.6	3.4	1.28	0.79
Chemistry	8	9.8	10.3	3.0	0.95	-0.17
Fluid Mechanics/Dynamics	8	9.8	9.5	2.1	1.03	0.14
Thermodynamics	8	10.1	9.2	2.0	1.10	0.45
Material/Energy Balances	8	10.4	9.3	2.5	1.12	0.44
Heat Transfer	8	9.9	9.6	2.3	1.03	0.13
Mass Transfer and Separation	8	10.9	9.4	2.0	1.16	0.75
Chemical Reaction Engineering	8	9.4	9.4	2.4	1.00	0.00
Process Design and Economics	8	6.5	9.8	2.8	0.66	-1.18
Process Control	5	8.6	9.4	3.1	0.91	-0.26
Safety, Health, and Environment	5	7.0	9.3	3.3	0.75	-0.70
Ethics and Professional Practice	2	9.3	11.3	5.1	0.82	-0.39

1.  $\underline{\mathbf{0}}$  examinees have been removed from this data because they were flagged as a random guesser.

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

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	34	6,085
No. Examinees Passing	25	4,182
Percent Examinees Passing	74%	69%

Uncertainty Range for Scaled Score <sup>4</sup> ± 0.17

	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	10.4	9.8	2.8	1.06	0.21
Probability and Statistics	4	9.9	9.7	3.4	1.02	0.06
Computational Tools	4	9.5	9.9	3.4	0.96	-0.12
Ethics and Professional Practice	4	10.7	10.0	3.4	1.07	0.21
Engineering Economics	4	11.3	9.9	3.4	1.14	0.41
Statics	7	9.5	9.5	2.7	1.00	0.00
Dynamics	4	9.4	9.7	3.4	0.97	-0.09
Mechanics of Materials	7	8.8	9.2	2.2	0.96	-0.18
Materials	4	10.2	9.4	3.2	1.09	0.25
Fluid Mechanics	4	9.8	10.2	3.5	0.96	-0.11
Hydraulics and Hydrologic Systems	8	9.2	9.2	2.2	1.00	0.00
Structural Analysis	6	9.5	9.0	2.4	1.06	0.21
Structural Design	6	8.8	8.9	2.4	0.99	-0.04
Geotechnical Engineering	9	9.7	9.2	1.9	1.05	0.26
Transportation Engineering	8	9.9	9.2	2.0	1.08	0.35
Environmental Engineering	6	9.0	9.2	2.6	0.98	-0.08
Construction	4	10.3	9.7	3.4	1.06	0.18
Surveying	4	9.9	8.6	3.6	1.15	0.36

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Graduation Date:	Examinees Testing within 12 months of Graduation Date

Name of Institution:		University of Kentucky, Lexington				
Major:	Computer	Computer FE Examination: Electrical and Computer				
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	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	1	95
No. Examinees Passing	1	68
Percent Examinees Passing	100%	72%

	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	11	9.9	9.4	2.2	1.05	0.23
Probability and Statistics	4	8.7	10.4	3.6	0.84	-0.47
Ethics and Professional Practice	3	7.6	12.0	3.8	0.63	-1.16
Engineering Economics	3	15.0	10.3	4.1	1.46	1.15
Properties of Electrical Materials	4	6.8	9.4	3.1	0.72	-0.84
Engineering Sciences	6	8.2	9.8	3.0	0.84	-0.53
Circuit Analysis (DC and AC Steady State)	10	8.2	8.9	2.4	0.92	-0.29
Linear Systems	5	7.3	9.0	2.4	0.81	-0.71
Signal Processing	5	7.9	9.2	2.9	0.86	-0.45
Electronics	7	9.6	9.2	2.1	1.04	0.19
Power	8	10.6	8.3	2.0	1.28	1.15
Electromagnetics	5	15.0	9.3	2.5	1.61	2.28
Control Systems	6	11.2	9.1	2.6	1.23	0.81
Communications	5	8.6	8.4	2.7	1.02	0.07
Computer Networks	3	6.9	11.3	3.9	0.61	-1.13
Digital Systems	7	7.0	10.3	2.4	0.68	-1.38
Computer Systems	4	10.4	10.9	2.7	0.95	-0.19
Software Development	4	15.0	11.9	3.1	1.26	1.00

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Name of Institution:		University of Kentucky, Lexington			
Major:	Electrical	FE Examination:	Electrical and Computer		
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	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	4	1,338
No. Examinees Passing	4	964
Percent Examinees Passing	100%	72%

	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	11	11.3	9.7	2.5	1.16	0.64
Probability and Statistics	4	12.0	9.9	3.5	1.21	0.60
Ethics and Professional Practice	3	10.2	11.4	3.9	0.89	-0.31
Engineering Economics	3	13.7	9.6	4.2	1.43	0.98
Properties of Electrical Materials	4	11.6	9.8	3.3	1.18	0.55
Engineering Sciences	6	10.7	10.1	3.2	1.06	0.19
Circuit Analysis (DC and AC Steady State)	10	10.8	9.5	2.4	1.14	0.54
Linear Systems	5	10.3	9.1	2.8	1.13	0.43
Signal Processing	5	9.3	9.3	2.7	1.00	0.00
Electronics	7	9.5	9.4	2.2	1.01	0.05
Power	8	9.9	9.4	2.2	1.05	0.23
Electromagnetics	5	11.9	9.4	3.0	1.27	0.83
Control Systems	6	10.0	9.2	2.5	1.09	0.32
Communications	5	11.8	9.0	2.6	1.31	1.08
Computer Networks	3	11.5	9.7	4.0	1.19	0.45
Digital Systems	7	10.9	9.3	2.6	1.17	0.62
Computer Systems	4	9.1	9.0	3.5	1.01	0.03
Software Development	4	9.3	9.8	3.6	0.95	-0.14

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Name of Institution:		University of Kentucky, Lexington			
Major:	Electrical	FE Examination:	Mechanical		
•					

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

	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	14.9	14.9	0.0	1.00	—
Probability and Statistics	4	14.9	12.7	3.1	1.17	0.71
Computational Tools	3	14.9	13.2	2.4	1.13	0.71
Ethics and Professional Practice	3	14.9	14.9	0.0	1.00	—
Engineering Economics	3	14.9	10.7	3.1	1.39	1.35
Electricity and Magnetism	3	10.2	13.3	2.2	0.77	-1.41
Statics	8	14.9	12.3	1.8	1.21	1.44
Dynamics, Kinematics, and Vibrations	9	14.9	13.8	1.6	1.08	0.69
Mechanics of Materials	8	14.9	12.0	2.1	1.24	1.38
Material Properties and Processing	8	14.9	13.4	2.2	1.11	0.68
Fluid Mechanics	9	9.8	11.1	2.7	0.88	-0.48
Thermodynamics	13	10.8	9.9	1.1	1.09	0.82
Heat Transfer	9	14.9	11.9	2.3	1.25	1.30
Measurements, Instrumentation, and Controls	5	11.5	11.1	0.3	1.04	1.33
Mechanical Design and Analysis	9	12.4	12.2	2.2	1.02	0.09

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

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	36	4,070
No. Examinees Passing	30	3,188
Percent Examinees Passing	83%	78%

Uncertainty Range for Scaled Score <sup>4</sup> ± 0.17

	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	10.7	10.2	2.8	1.05	0.18
Probability and Statistics	4	10.8	9.6	3.3	1.13	0.36
Computational Tools	3	10.3	10.7	3.9	0.96	-0.10
Ethics and Professional Practice	3	12.4	11.5	3.8	1.08	0.24
Engineering Economics	3	11.1	10.1	4.0	1.10	0.25
Electricity and Magnetism	3	10.3	10.3	3.9	1.00	0.00
Statics	8	10.7	9.7	2.5	1.10	0.40
Dynamics, Kinematics, and Vibrations	9	10.3	9.4	2.0	1.10	0.45
Mechanics of Materials	8	10.3	9.3	2.0	1.11	0.50
Material Properties and Processing	8	9.8	9.6	2.3	1.02	0.09
Fluid Mechanics	9	9.6	9.6	2.3	1.00	0.00
Thermodynamics	13	9.6	9.4	1.6	1.02	0.13
Heat Transfer	9	9.6	9.7	2.2	0.99	-0.05
Measurements, Instrumentation, and Controls	5	10.3	9.3	3.0	1.11	0.33
Mechanical Design and Analysis	9	9.6	9.2	2.2	1.04	0.18

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Graduation Date:	Examinees Testing within 12 months of Graduation Date

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

	Institution	ABET Comparator <sup>2</sup>
No. Examinees Taking <sup>1</sup>	4	96
No. Examinees Passing	4	56
Percent Examinees Passing	100%	58%

Uncertainty
Range for
Scaled
Score <sup>4</sup>
± 0.50

	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	10.4	8.7	1.5	1.20	1.13
Probability and Statistics	6	13.6	9.2	2.7	1.48	1.63
Chemistry	7	9.6	9.4	2.0	1.02	0.10
Instrumentation and Data Acquisition	4	10.2	7.4	3.4	1.38	0.82
Ethics and Professional Practice	3	12.9	11.2	4.1	1.15	0.41
Safety, Health, and Environment	4	11.0	9.2	3.7	1.20	0.49
Engineering Economics	7	10.4	9.4	2.6	1.11	0.38
Statics	8	9.5	8.5	2.0	1.12	0.50
Dynamics	7	9.4	8.9	1.8	1.06	0.28
Strength of Materials	8	9.7	8.3	1.4	1.17	1.00
Materials Science	6	10.9	9.2	2.4	1.18	0.71
Fluid Mechanics and Dynamics of Liquids	8	11.3	9.1	2.2	1.24	1.00
Fluid Mechanics and Dynamics of Gases	4	9.9	8.7	3.3	1.14	0.36
Electricity, Power, and Magnetism	7	8.8	8.4	2.6	1.05	0.15
Heat, Mass, and Energy Transfer	9	9.9	8.3	2.3	1.19	0.70

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