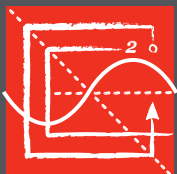




Subject Matter Reports

An outcomes assessment
tool for educators



NCEES

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engineers and surveyors*




Subject Matter Reports

How does your program and your students' performance compare?

NCEES provides an institution- and degree-specific report known as the Subject Matter Report. The Subject Matter Report details the performance of currently enrolled students at your institution who take the Fundamentals of Engineering (FE) exam.

In January and July of each calendar year, we produce and distribute free detailed Subject Matter Reports containing summary exam results by subject area for all EAC/ABET-, ETAC/ABET-, and ANSAC/ABET-accredited engineering programs. Educators use the reports to compare their students' performance against that of all examinees



**The right tool
for the right
job—** The FE
as an Outcomes
Assessment Tool

from ABET-accredited programs who declared the same major and who chose the same discipline-specific exam.

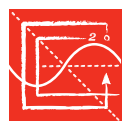
Learn more about why the Subject Matter Report is the right tool for outcomes assessment. Find out how to receive your report.

Contact

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ncees.org/fe

Examination: Fundamentals of Engineering (FE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01—Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date: Examinees Testing within 12 months of Graduation Date

Name of Institution:		EXAMPLE	
Major:	Civil	FE Examination:	Civil

	Institution	ABET Comparator ²
No. Examinees Taking ¹	31	2,499
No. Examinees Passing	26	1,760
Percent Examinees Passing	84%	70%

Uncertainty Range for Scaled Score ⁴ ± 0.18
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	Number of Exam Questions	Institution Average Performance Index ³	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score ⁴	Scaled Score ⁴
Mathematics	7	9.8	9.8	2.7	1.00	0.00
Probability and Statistics	4	10.4	10.1	3.5	1.03	0.09
Computational Tools	4	10.2	9.9	3.7	1.03	0.08
Ethics and Professional Practice	4	12.3	11.1	3.8	1.11	0.32
Engineering Economics	4	10.7	10.1	3.6	1.06	0.17
Statics	7	10.7	9.5	2.8	1.13	0.43
Dynamics	4	10.9	10.3	3.6	1.06	0.17
Mechanics of Materials	7	9.7	9.7	2.5	1.00	0.00
Materials	4	8.7	9.2	3.1	0.95	-0.16
Fluid Mechanics	4	10.5	10.9	3.4	0.96	-0.12
Hydraulics and Hydrologic Systems	8	9.7	9.4	2.2	1.03	0.14
Structural Analysis	6	9.7	8.9	2.5	1.09	0.32
Structural Design	6	8.4	8.9	2.6	0.94	-0.19
Geotechnical Engineering	9	9.5	9.4	2.1	1.01	0.05
Transportation Engineering	8	9.2	9.0	2.2	1.02	0.09
Environmental Engineering	6	8.9	8.8	2.7	1.01	0.04
Construction	4	11.5	9.5	3.7	1.21	0.54
Surveying	4	8.4	8.1	3.6	1.04	0.08

- 0 examinees have been removed from this data because they were flagged as a random guesser.
- Comparator includes all examinees from programs accredited by the ABET commission noted.
- Performance index is based on a 0–15 scale.
- 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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Examination: Fundamentals of Engineering (FE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01—Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date: Examinees Testing within 12 months of Graduation Date

Name of Institution:		EXAMPLE	
Major:	Electrical	FE Examination:	Electrical and Computer

	Institution	ABET Comparator ²
No. Examinees Taking ¹	14	595
No. Examinees Passing	13	462
Percent Examinees Passing	93%	78%

**Uncertainty
Range for
Scaled
Score ⁴**
± 0.27

	Number of Exam Questions	Institution Average Performance Index ³	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score ⁴	Scaled Score ⁴
Mathematics	11	10.6	10.1	2.4	1.05	0.21
Probability and Statistics	4	9.8	10.3	3.2	0.95	-0.16
Ethics and Professional Practice	3	13.4	11.8	4.0	1.14	0.40
Engineering Economics	3	11.6	9.9	4.1	1.17	0.41
Properties of Electrical Materials	4	10.8	11.0	2.9	0.98	-0.07
Engineering Sciences	6	12.5	11.6	3.3	1.08	0.27
Circuit Analysis	10	10.1	9.9	2.6	1.02	0.08
Linear Systems	5	9.9	9.4	3.0	1.05	0.17
Signal Processing	5	10.2	9.7	3.0	1.05	0.17
Electronics	7	10.8	9.7	2.3	1.11	0.48
Power	8	9.5	9.6	2.1	0.99	-0.05
Electromagnetics	5	11.6	10.0	3.1	1.16	0.52
Control Systems	6	9.4	9.2	2.5	1.02	0.08
Communications	5	10.0	9.0	2.8	1.11	0.36
Computer Networks	3	9.7	9.5	4.3	1.02	0.05
Digital Systems	7	10.7	9.2	2.7	1.16	0.56
Computer Systems	4	10.1	8.9	3.7	1.13	0.32
Software Development	4	11.9	10.5	4.4	1.13	0.32

1. 0 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. 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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Examination: Fundamentals of Engineering (FE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01—Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date: Examinees Testing within 12 months of Graduation Date

Name of Institution:		EXAMPLE	
Major:	Mechanical	FE Examination:	Mechanical

	Institution	ABET Comparator ²
No. Examinees Taking ¹	3	1,707
No. Examinees Passing	2	1,452
Percent Examinees Passing	67%	85%

Uncertainty Range for Scaled Score ⁴ ± 0.58
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	Number of Exam Questions	Institution Average Performance Index ³	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score ⁴	Scaled Score ⁴
Mathematics	6	10.3	10.5	3.0	0.98	-0.07
Probability and Statistics	4	8.7	10.5	3.2	0.83	-0.56
Computational Tools	3	8.0	11.0	4.2	0.73	-0.71
Ethics and Professional Practice	3	15.0	11.8	3.9	1.27	0.82
Engineering Economics	3	8.2	10.2	4.2	0.80	-0.48
Electricity and Magnetism	3	13.2	11.0	3.8	1.20	0.58
Statics	8	10.2	10.1	2.6	1.01	0.04
Dynamics, Kinematics, and Vibrations	9	10.5	10.0	2.3	1.05	0.22
Mechanics of Materials	8	11.3	9.9	2.1	1.14	0.67
Material Properties and Processing	8	9.8	9.9	2.1	0.99	-0.05
Fluid Mechanics	9	10.5	10.3	2.2	1.02	0.09
Thermodynamics	13	9.5	9.6	1.5	0.99	-0.07
Heat Transfer	9	10.8	9.9	2.2	1.09	0.41
Measurements, Instrumentation, and Controls	5	8.6	9.5	3.1	0.91	-0.29
Mechanical Design and Analysis	9	9.4	9.1	2.4	1.03	0.13

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Examination: Fundamentals of Engineering (FE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01–Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date: Examinees Testing within 12 months of Graduation Date

Name of Institution:		EXAMPLE	
Major:	Petroleum	FE Examination:	Other Disciplines

	Institution	ABET Comparator ²
No. Examinees Taking ¹	7	81
No. Examinees Passing	6	54
Percent Examinees Passing	86%	67%

Uncertainty Range for Scaled Score ⁴ ± 0.38
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	Number of Exam Questions	Institution Average Performance Index ³	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score ⁴	Scaled Score ⁴
Mathematics and Advanced Engineering Mathematics	12	8.8	9.0	1.8	0.98	-0.11
Probability and Statistics	6	9.3	9.2	1.9	1.01	0.05
Chemistry	7	9.9	9.6	2.3	1.03	0.13
Instrumentation and Data Acquisition	4	7.0	9.0	3.4	0.78	-0.59
Ethics and Professional Practice	3	13.1	11.4	3.7	1.15	0.46
Safety, Health, and Environment	4	11.6	11.2	3.4	1.04	0.12
Engineering Economics	7	11.5	9.8	2.8	1.17	0.61
Statics	8	9.1	8.8	2.5	1.03	0.12
Dynamics	7	10.3	9.5	2.3	1.08	0.35
Strength of Materials	8	9.4	8.7	2.0	1.08	0.35
Materials Science	6	8.4	8.9	2.3	0.94	-0.22
Fluid Mechanics and Dynamics of Liquids	8	9.4	9.0	2.3	1.04	0.17
Fluid Mechanics and Dynamics of Gases	4	9.8	8.6	3.1	1.14	0.39
Electricity, Power, and Magnetism	7	9.3	8.5	2.2	1.09	0.36
Heat, Mass, and Energy Transfer	9	8.9	8.7	2.1	1.02	0.10

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Examination: Fundamentals of Engineering (FE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01—Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs
Graduation Date: Examinees testing more than 12 months after graduation date

Name of Institution: EXAMPLE	
Major: Construction	FE Examination: Civil

	Institution	ABET Comparator ²
No. Examinees Taking ¹	2	3
No. Examinees Passing	1	2
Percent Examinees Passing	50%	67%

**Uncertainty
Range for
Scaled
Score ⁴**
± 0.71

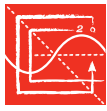
	Number of Exam Questions	Institution Average Performance Index ³	ABET Comparator Average Performance Index	ABET Comparator Standard Deviation	Ratio Score ⁴	Scaled Score ⁴
Mathematics	7	8.4	8.0	0.6	1.05	0.67
Probability and Statistics	4	12.6	11.3	2.7	1.12	0.48
Computational Tools	4	9.2	8.2	1.4	1.12	0.71
Ethics and Professional Practice	4	15.0	15.0	0.0	1.00	—
Engineering Economics	4	10.5	9.6	3.9	1.09	0.23
Statics	7	11.5	11.1	2.9	1.04	0.14
Dynamics	4	10.3	11.8	4.5	0.87	-0.33
Mechanics of Materials	7	9.1	9.2	0.4	0.99	-0.25
Materials	4	9.0	9.4	1.0	0.96	-0.40
Fluid Mechanics	4	12.4	13.3	2.5	0.93	-0.36
Hydraulics and Hydrologic Systems	8	11.6	9.9	3.6	1.17	0.47
Structural Analysis	6	7.9	8.3	0.7	0.95	-0.57
Structural Design	6	8.8	8.1	1.8	1.09	0.39
Geotechnical Engineering	9	8.9	7.9	1.5	1.13	0.67
Transportation Engineering	8	9.5	9.0	1.5	1.06	0.33
Environmental Engineering	6	8.8	8.8	1.5	1.00	0.00
Construction	4	11.5	12.6	3.3	0.91	-0.33
Surveying	4	9.1	9.2	0.6	0.99	-0.17

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Examination: Principles and Practice of Engineering (PE)
Report title: Subject Matter Report by Major and Examination
Exams administered: Jul 01—Nov 30, 20XX
Examinees included: First-Time Examinees from EAC/ABET-Accredited Engineering Programs

Name of Institution:		EXAMPLE	
Major:	Chemical	PE Examination:	Chemical

	Institution	ABET Comparator ²
No. Examinees Taking ¹	4	176
No. Examinees Passing	2	132
Percent Examinees Passing	50%	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	53.1	61.5	1.9
Mass Energy Balances and Thermodynamics: Energy Balances and Thermodynamics	10	52.5	63.0	1.9
Heat Transfer: Mechanisms	7	42.9	64.7	1.3
Heat Transfer: Applications	6	50.0	62.4	1.4
Kinetics: Reaction Parameters	5	50.0	56.9	1.2
Kinetics: Reactors	4	62.5	57.8	1.1
Fluids: Mechanical-Energy Balance	10	65.0	67.0	2.0
Fluids: Flow and Pressure Measurement Techniques	3	50.0	69.2	0.9
Mass Transfer: Phase Equilibria	4	62.5	67.5	1.1
Mass Transfer: Continuous Vapor-Liquid Contactors	6	41.7	49.4	1.4
Mass Transfer: Miscellaneous Mass Transfer Processes	1	100.0	87.9	0.3
Plant Design and Operation: Economic Considerations	1	75.0	77.0	0.4
Plant Design and Operation: Design	8	59.4	65.7	1.7
Plant Design and Operation: Operation	3	58.3	62.6	0.8
Plant Design and Operation: Safety; Health; and Environment	4	68.8	69.8	0.9

1. 0 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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