



Center for the Study of Higher Education

Welcome UNIVERSITY students!

Thanks for checking us out! We need your help. The National Academy of Engineering has identified the knowledge and skills that engineers will need to succeed in the workplace of the future. This National Science Foundation-funded study is designed to benchmark the current state of undergraduate engineering education and find out if we're making progress toward those goals. To do that, we're surveying students at 35 colleges and universities around the country. (You can find out who else is participating at <http://www.ed.psu.edu/educ/e2020/p2p-participating-institutions>.)

We know you're busy, so we will really appreciate your help. We also think you may find completing this survey a good opportunity to reflect on your engineering education to-date.

The next page outlines your rights as a research participant and provides more details on the study.



**This study is funded by the National Science Foundation
and endorsed by the following associations and
professional engineering societies:**





Educating the Engineer of 2020 Student Survey

Personal Information

1. What is your current class standing?

- First-year student
- Sophomore
- Junior
- Senior
- Fifth-year student or higher

2. What is your major?

- Undecided/undeclared in engineering
- Bio-medical or Bio-engineering
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- General Engineering/Engineering Science
- Industrial Engineering
- Mechanical Engineering
- Other engineering discipline (please specify): _____

3. When you entered this institution, were you:

- A first-time college student
- A transfer student from a community or two-year college
- A transfer student from a four-year institution
- A "3+2 program" with a four-year institution

4. What is your gender?

- Man
- Woman

5. How old:

Are you now? _____

Were you when you first entered college? _____

Do you think you will be when you complete your bachelor's degree? _____

6. Are you: (check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> African American | <input type="checkbox"/> Caucasian/White |
| <input type="checkbox"/> Asian American | <input type="checkbox"/> Foreign national (i.e., citizen of another country) |
| <input type="checkbox"/> Hispanic/Latino/a American | <input type="checkbox"/> Naturalized U.S. citizen |
| <input type="checkbox"/> Native American | <input type="checkbox"/> Other (please specify) _____ |

7. What is the highest level of formal schooling that you and each of your parents/guardians have completed?

	Mother/Guardian	Father/Guardian
Did not finish high school	<input type="radio"/>	<input type="radio"/>
High school graduate/GED	<input type="radio"/>	<input type="radio"/>
Attended college but did not receive a degree	<input type="radio"/>	<input type="radio"/>
Vocational/technical certificate or diploma	<input type="radio"/>	<input type="radio"/>
Associate or other 2-year degree	<input type="radio"/>	<input type="radio"/>
Bachelor's or other 4-year degree	<input type="radio"/>	<input type="radio"/>
Master's degree (M.A., M.S., M.B.A., etc)	<input type="radio"/>	<input type="radio"/>
Doctorate degree (Ph.D., J.D., M.D., etc.)	<input type="radio"/>	<input type="radio"/>

8. Did you take the SAT or ACT tests? (Please respond to all that apply)

- No. I did not take either exam.
- Yes, I took the SAT exams, and my scores were approximately:
 - SAT Critical Reading _____
 - SAT Writing _____
 - SAT Math _____
- Yes, I took the ACT exam, and my composite score was approximately _____

9. What was/is your approximate academic average in:

	High School	Your engineering program
1.49 or below (Below C-)	<input type="radio"/>	<input type="radio"/>
1.50-1.99 (C- to C)	<input type="radio"/>	<input type="radio"/>
2.00-2.49 (C to B-)	<input type="radio"/>	<input type="radio"/>
2.50-2.99 (B- to B)	<input type="radio"/>	<input type="radio"/>
3.00-3.49 (B to A-)	<input type="radio"/>	<input type="radio"/>
3.50-4.00 (A- to A)	<input type="radio"/>	<input type="radio"/>
Not applicable	<input type="radio"/>	<input type="radio"/>

ENGINEERING SKILLS

Instructions: In the following section, you will be asked to rate your skill level and abilities in a variety of areas. If you're unfamiliar with, or have had no experience with, any of these, select the "Weak/none" option.

10. Applying Math & Science. Please rate your ability to apply:

	Weak/none	Fair	Good	Very Good	Excellent
Math to engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The physical sciences to engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer tools and applications to engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Life sciences to engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Defining Problems and Generating Design Solutions. Please rate your ability to:

	Weak/none	Fair	Good	Very good	Excellent
Define design problems and objectives clearly and precisely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ask questions to understand what a client/customer really wants in a "product."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Undertake a search (literature review, databases, benchmarking, reverse-engineering, etc.) before beginning team-based brain-storming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Take into account the design contexts and the constraints they may impose on each possible solution (social, cultural, economic, environmental, political, ethical, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generate and prioritize criteria for evaluating the quality of a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brainstorm possible engineering solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apply systems thinking in developing solutions to an engineering problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop pictorial representations of possible designs (sketches, renderings, engineering drawings, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluate design solutions based on a specified set of criteria.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Producing a product (prototype, program, simulation, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions: In the following section, you will be asked to rate your skill level and abilities in a variety of areas. If you're unfamiliar with, or have had no experience with, any of these, select the "Weak/none" option.

12. Managing a Design Project. Please rate your ability to:

	Weak/none	Fair	Good	Very good	Excellent
Break down a design project into manageable components or tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify team members' strengths/weaknesses and distribute tasks and workload accordingly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognize when changes to the original understanding of the problem may be necessary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitor the design process to ensure goals are being met.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Put aside differences within a design team to get the work done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Engineering Contexts. Please rate your:

	Weak/none	Fair	Good	Very good	Excellent
Knowledge of contexts (social, political, economic, cultural, environmental, ethical, etc.) that might affect the solution to an engineering problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of the connections between technological solutions and their implications for the society or groups they are intended to benefit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to use what you know about different cultures, social values, or political systems in developing engineering solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to recognize how different contexts can change a solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions: In the following section, you will be asked to rate your skill level and abilities in a variety of areas. If you're unfamiliar with, or have had no experience with, any of these, select the "Weak/none" option.

14. Communication. Please rate your ability to:

	Weak/none	Fair	Good	Very good	Excellent
Write a well-organized, coherent report.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make effective audiovisual presentations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construct tables or graphs to communicate a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with clients, teammates, and supervisors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with <i>non-technical</i> audiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with people from different cultures or countries.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Teamwork. Please rate your ability to:

	Weak/none	Fair	Good	Very good	Excellent
Work with others to accomplish group goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in teams of people with a variety of skills and backgrounds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in teams where knowledge and ideas from multiple engineering fields must be applied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in teams that include people from fields <i>outside engineering</i> .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Leadership. Please rate your ability to:

	Weak/none	Fair	Good	Very good	Excellent
Help your group or organization work through periods when ideas are too many or too few.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a plan to accomplish a group or organization's goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Take responsibility for group's or organization's performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motivate people to do the work that needs to be done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions: Indicate your level of agreement with the following statements.

17. Interdisciplinary Knowledge and Skills. Do you agree or disagree?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I value reading about topics outside of engineering (history, business, politics, the cultures of other parts of the world, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy thinking about how different fields approach the same problem in different ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not all engineering problems have purely technical solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In solving engineering problems I often seek information from experts in other academic fields.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Given knowledge and ideas from different fields, I can figure out what is appropriate for solving a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see connections between ideas in engineering and ideas in the humanities and social sciences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can take ideas from <u>outside engineering</u> and synthesize them in ways that help me better understand or explain a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use what I have learned in one field in another setting or to solve a new problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Recognizing Perspectives. Do you agree or disagree?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I often step back and reflect on what I am thinking to determine whether I might be missing something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently stop to think about where I might be going wrong or right with a problem solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If asked, I could identify the <i>kinds of knowledge and ideas</i> that are distinctive to different fields of study (chemistry, psychology, literature, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I recognize the kinds of evidence that different fields of study rely on.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm good at figuring out what experts in different fields have missed in explaining a problem or proposing a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually know when my own biases are getting in the way of my understanding of a problem or finding a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions: Indicate your level of agreement with the following statements.

19. Recognizing Perspectives. Do you agree or disagree?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I often step back and reflect on what I am thinking to determine whether I might be missing something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently stop to think about where I might be going wrong or right with a problem solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If asked, I could identify the <i>kinds of knowledge and ideas</i> that are distinctive to different fields of study (chemistry, psychology, literature, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I recognize the kinds of evidence that different fields of study rely on.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm good at figuring out what experts in different fields have missed in explaining a problem or proposing a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually know when my own biases are getting in the way of my understanding of a problem or finding a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PROGRAM EMPHASES

Instructions: Overall, how much have the courses you've taken in your engineering program emphasized each of the following:

20. Topics in Engineering

	Little/no emphasis	Slight	Moderate	Strong	Very strong
Ethical issues in engineering practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The importance of life-long learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Examining my beliefs and values and how they affect my ethical decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The value of gender, racial/ethnic, or cultural diversity in engineering.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creativity and innovation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current workforce and economic trends (globalization, outsourcing, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emerging engineering technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How theories are used in engineering practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Professional Skills

	Little/no emphasis	Slight	Moderate	Strong	Very strong
Professional skills (knowing codes and standards, being on time, meeting deadlines, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Written and oral communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working effectively in teams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project management skills (budgeting, monitoring progress, managing people, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions: Overall, how much have the courses you've taken in your engineering program emphasized each of the following:

22. Problem Solving

	Little/no emphasis	Slight	Moderate	Strong	Very strong
Understanding how an engineering solution can be shaped by environmental, cultural, economic, and other considerations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding how non-engineering fields can help solve engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Systems thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Applying knowledge from other fields to solve an engineering problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defining a design problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generating and evaluating ideas about how to solve an engineering problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Since starting your engineering program, approximately how many months have you spent participating in each of the following:

- Undergraduate research activities _____
- Engineering internship _____
- An engineering cooperative education experience _____

24. How important to your academic success in engineering are the services of a learning/tutoring center at your college?

- Not at all important
- Slightly important
- Moderately important
- Very important
- Extremely important

25. Approximately how many courses have you completed to date in the following fields:

- Humanities (history, art, literature, foreign languages, etc.) _____
- Social sciences (economics, sociology, political science, psychology, etc.) _____

CLASSROOM EXPERIENCES

26. In your engineering courses, how often have your instructors:

	Never	Rarely	Sometimes	Often	Very often
Set clear expectations for performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Only covered what was in the textbook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conveyed the same material in multiple ways (in writing, diagrams, orally, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explained new concepts by linking them to what students already know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used examples, cases, or metaphors to explain concepts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Answered questions or gone over material until students "got it"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provided guidance or training in how to work effectively in groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lectured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provided hands-on activities and/or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used in-class, small group learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assigned group projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. In your engineering courses, how often do:

	Never	Rarely	Sometimes	Often	Very often
Male students treat other male students better than female students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White students treat other white students better than non-white students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>When working in groups</i> , male students treat other male students better than female students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>When working in groups</i> , white students treat other white students better than non-white students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructors treat male students better than female students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructors treat white students better than non-white students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Women students get treated better than male students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minority students get treated better than white students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Do you agree or disagree with the following:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Some engineering students use offensive words, behaviors, or gestures directed at students because of their gender.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some engineering students use offensive words, behaviors, or gestures directed at students because of their race/ethnicity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My gender has or will influence my choice of engineering field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My gender will negatively influence my engineering career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My race/ethnicity has or will influence my choice of engineering field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My race/ethnicity will negatively influence my engineering career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXTRACURRICULAR EXPERIENCES

29. During the past year, how active have you been in:

	Not active	Slightly active (attend occasionally)	Moderately active (attend regularly)	Highly active (participate in most activities)	Extremely active (hold a leadership post)
An engineering club or student chapter of a professional society (IEEE, ASME, ASCE, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other engineering-related clubs or programs for women and/or minority students (e.g. NSBE, SHPE, SWE, WISE, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other clubs or activities (hobbies, civic or church organizations, campus publications, student government, Greek life, sports, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



30. During the past year, about how many weeks did you spend participating in:

- Study abroad or on an international, school-related tour _____
- Humanitarian engineering projects (Engineers without Borders, etc.) _____
- Non-engineering related community service or volunteer work _____
- Student design project(s)/competition(s) beyond class requirements _____

31. During the past six months, about how many times did you meet outside of class with a faculty member to: (count only conversations of 10 minutes or more)

- Discuss academic or course-related matters _____
- Ask about careers or get professional advice _____
- Talk informally _____

COMMUNITY COLLEGE TRANSFER EXPERIENCES

32. Did you complete your associate's degree before transferring to your four-year college?

- Yes
- No

33. Do you agree or disagree with the statement: "My community or two-year college advisor was very knowledgeable of the transfer process?"

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

34. How many courses did you complete at a community or two-year college in the following areas?

- Calculus _____
- Chemistry _____
- Physics _____
- Computer programming _____
- Introduction or overview of engineering _____
- Other engineering courses _____

35. How well did your community or two-year college math courses prepare you for your engineering major?

- Not at all
- Slightly
- Moderately
- Well
- Very well

36. How does the community or two-year college you transferred from compare to the school you're now attending in:

	Very poorly	Poorly	About the same	Better	Much better
Quality of teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of instructors outside of class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of staff and advisors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scheduling flexibility (courses offered when you need/want them)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic support services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Willingness to help students whose first language is not English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ADDITIONAL INFORMATION

37. In a typical week, how many hours do you spend:

Preparing for class (studying, doing homework or lab work, and other academic activities) _____

Working for pay _____

Meeting family responsibilities(care of siblings, children, other family members) _____

Commuting to and from school or work _____

38. Three years after you graduate, how likely is it that you will:

	Definitely won't	Probably won't	Not sure	Probably will	Definitely will
Be self-employed in engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be a practicing engineer in industry, government, or non-profit organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in engineering management or sales	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work outside engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be in graduate school preparing to become an engineering faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be in graduate school in engineering preparing to work in industry, government, or non-profit organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be in graduate school in a field other than engineering (business, medicine, law, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Center for the Study of Higher Education

39. Have you been enrolled at your current institution primarily:

- Full-time
- Part-time

40. Is English your native language?

- Yes
- No

41. What was the first math course you took after completing high school?

- Math required prior to algebra
- Another math course (algebra, geometry, trigonometry, pre-calculus, etc.)
- Calculus or above

42. Since enrolling in college, how many years have you lived:

In a general residence hall _____

In a residence area specifically for majors in engineering, science, or math _____

In a fraternity or sorority _____

With parents, spouse/domestic partner, or other relatives _____

Off-campus in private quarters _____

43. Have you taken the Fundamentals of Engineering (FE) exam?

- No
- Yes in (most recent year) _____

44. Did you pass?

- Yes
- No
- Not applicable

Thank you very much for your participation! The responses you have given us will help engineering programs nationwide improve their educational practices. If you have any questions about this study please contact us at e2020@psu.edu. You can also follow the progress of this study at <http://www.ed.psu.edu/educ/e2020/p2p>.

Lisa R. Lattuca and Patrick T. Terenzini, Project-CoDirectors
Center for the Study of Higher Education, The Pennsylvania State University

Questions about the survey can be directed to Patricia Nordstrom, Survey Research Center, The 330 Building, Suite 105
The Pennsylvania State University, University Park, PA 16802; (814) 863-0170