ENGINEERING CHANGE
A STUDY OF ENGINEERING EMPLOYERS

PENNS**TATE**
1 8 5 5
**Center for the Study
of Higher Education**

ABET

Endorsed by:

AIAA	American Institute of Aeronautics and Astronautics
AIChE	American Institute of Chemical Engineers
ASCE	American Society of Civil Engineers
ASME International	American Society of Mechanical Engineers
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IIE	Institute of Industrial Engineers
ASEE	American Society for Engineering Education

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Using pen or pencil, please <u>completely fill</u> in the appropriate box or circle with your response.

1. Have you been involved in hiring or evaluating recent bachelor's degree-level engineering graduates from any of the following fields: Aerospace, Chemical, Civil, Computer, Electrical, Industrial, or Mechanical Engineering?

   ○ Yes   ○ No (If NO, Skip to Question 4.)

2. If so, have you been involved in this process for 7 or more years (not necessarily for the same organization)?

   ○ Yes   ○ No

3. a. Approximately how many new engineers (bachelor's degree) do **you personally** evaluate each year?

      ○ 1 or less   ○ 2 - 5   ○ 6 - 10   ○ More than 10

   b. Where do these engineering graduates primarily come from?

      ○ 1 or 2 institutions   ○ 3 - 5 institutions   ○ 6 - 10 institutions   ○ More than 10 institutions

   c. Are they recruited **primarily:**

      ○ Locally   ○ Within your state or region   ○ Nationally

4. With which field's graduates are you **MOST** familiar? (Select one.)

   ○ Aerospace Engineering   ○ Electrical Engineering

   ○ Chemical Engineering   ○ Industrial Engineering

   ○ Civil Engineering   ○ Mechanical Engineering

   ○ Computer Engineering

5. Think about the field you selected in question 4. In this field, how pepared are recent engineering graduates:

	Inadequately Prepared	Adequately Prepared	Well Prepared	Don't Know
To use engineering, math, science, and technical skills?	○	○	○	○
To apply problem-solving skills?	○	○	○	○
To communicate and work in teams?	○	○	○	○
To understand the organizational, cultural, and environmental contexts and constraints of engineering practice, design, and research?	○	○	○	○
To continue to learn, grow, and adapt as technology and social conditions evolve in unpredictable directions?	○	○	○	○

6. Think about the field you selected in question 4. In this field, have the abilities of graduates increased or decreased **compared to engineering graduates of 7-10 years ago**?

	Decreased	About the Same	Increased	Don't Know
To use engineering, math, science, and technical skills	○	○	○	○
To apply problem-solving skills	○	○	○	○
To communicate and work in teams	○	○	○	○
To understand the organizational, cultural, and environmental contexts and constraints of engineering practice, design, and research	○	○	○	○
To continue to learn, grow, and adapt as technology and social conditions evolve in unpredictable directions	○	○	○	○

7. How important is it for new engineering graduates to have each of the following:

	Unimportant	Slightly Important	Moderately Important	Highly Important	Essential
Ability to apply knowledge of mathematics, science and engineering	○	○	○	○	○
Ability to design and conduct experiments, as well as to analyze and interpret data	○	○	○	○	○
Ability to design a system, component, or process to meet desired needs	○	○	○	○	○
Ability to function on multi-disciplinary teams	○	○	○	○	○
Ability to identify, formulate, and solve engineering problems	○	○	○	○	○
An understanding of professional and ethical responsibilities	○	○	○	○	○
Ability to communicate effectively	○	○	○	○	○
Understands the impact of engineering solutions in a global and societal context	○	○	○	○	○
A recognition of the need for, and an ability to engage in life-long learning	○	○	○	○	○
A knowledge of contemporary issues	○	○	○	○	○
Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	○	○	○	○	○
Other important abilities/skills areas (please specify) _____	○	○	○	○	○
Other important abilities/skills areas (please specify)	○	○	○	○	○
Other important abilities/skills areas (please specify) _____	○	○	○	○	○

8. Do you have any recommendations for improving engineering education?

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9. How many employees are there in your company **at your location**?

   ○ less than 50   ○ 50 - 499   ○ 500 - 3,000   ○ 3,001 - 10,000   ○ More than 10,000

10. Are you in the professional engineer track of your organization?

   ○ Yes   ○ No (If NO, Skip to Question 11.)

   10a. If yes, at what level:
       ○ Entry-level
       ○ Mid-level
       ○ Senior-level

11. Are you in the management track of your organization?

   ○ Yes   ○ No (If NO, Skip to Question 12.)

   11a. If yes, at what level:
       ○ Line/entry-levelmanagement
       ○ Program/mid-levelmanagement
       ○ Executive/senior-levelmanagement

12. Which of the following best describes your functional area?

   ○ Information/technology/network support

   ○ Management/administration/executive

   ○ Production, installation, delivery of services

   ○ Research/development/testing

   ○ Business/finance

   ○ Human resources

   ○ Marketing/sales

   ○ Other (please specify) _____

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13. Do you have a degree in engineering?

   ○ Yes   ○ No (if NO, skip to question 14.)

13a. If yes, in what field?

   ○ Aerospace Engineering   ○ Electrical Engineering

   ○ Chemical Engineering   ○ Industrial Engineering

   ○ Civil Engineering   ○ Mechanical Engineering

   ○ Computer Engineering   ○ Other (please specify) _____

14. What is your highest degree and year earned?   Year earned: [ ][ ][ ][ ]

   Highest degree: ○ Bachelor's   ○ Master's   ○ Doctoral or 1st Professional

15. Please give your state or non-USA country abbreviation. _____

16. Which of the following categories best describes your organization's <u>primary</u> line of business <u>at your location</u>?
   [Categories used by the Engineering Workforce Commission of the American Association of Engineering Societies, Inc.]

   ○ Accommodation & Food Services

   ○ Administrative/Support, Waste Management, & Remediation Services

   ○ Agriculture, Forestry, Fishing & Hunting

   ○ Arts, Entertainment, & Recreation

   ○ Construction

   ○ Educational Services

   ○ Finance & Insurance

   ○ Health Care, Social Assistance

   ○ Information (TV, cable, radio, telecommunications)

   ○ Management of Companies & Enterprises

   ○ Manufacturing

   ○ Mining (including Oil & Gas)

   ○ Professional, Scientific, & Tech Services (R&D)

   ○ Public Administration (Government/Civil Service/Military)

   ○ Real Estate & Rental Leasing

   ○ Retail Trade

   ○ Transportation & Warehousing

   ○ Utilities

   ○ Wholesale Trade

   ○ Other (please specify) _____

Thank you for your participation and response!

Please return this survey in the postage-paid envelope provided.

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