



Surveying industry needs for leadership in entry-level engineering positions

Beth Lin Hartmann P.E., Iowa State University

Beth L. Hartmann is a Lecturer of Construction Engineering at Iowa State University (ISU). A retired U.S. Navy Civil Engineer Corps officer (O-5), she currently teaches the design-build capstone course for civil and construction engineering students and the construction engineering learning community. Hartmann received her Bachelor of Art in Architecture and her Master of Science in Civil Engineering with an emphasis in Construction Engineering and Management from ISU in 1989 and 1996, respectively.

Dr. Clinton Stephens, Iowa State University

Dr. Clinton M. Stephens is a lecturer for leadership education with the Carrie Chapman Catt Center for Women and Politics at Iowa State University. Currently, Stephens coordinates the Catt Center's burgeoning leadership program and teaches classes in leadership development including CLPS 322, "Leadership Styles and Strategies in a Diverse Society."

Stephens continues his research and dissemination work that focuses on student leadership development, specifically assessing the effectiveness of courses and workshops to develop participants' leadership skills, directs the overall program and teaches the growing number of students in the program's core courses.

Stephens completed a B.S. in Business Administration at Kansas State University in 2002, a M.S. in College Student Development at Oklahoma State University in 2005 and a Ph.D. in Higher Education Administration in 2012 at Iowa State University.

Dr. Charles T. Jahren P.E., Iowa State University

BIOGRAPHY – Charles T. Jahren Charles T. Jahren is the W. A. Klinger Teaching Professor and the Assistant Chair for Construction Engineering in the Department of Civil, Construction and Environmental Engineering at Iowa State University. He earned his Bachelor of Science in Civil Engineering and his Master of Business Administration from the University of Minnesota and his PhD in Civil Engineering from Purdue University. He has over six years of industrial experience as a bridge construction project engineer for a construction contractor and as a research engineer for the Naval Civil Engineering Laboratory in Port Hueneme California. His teaching interests include construction equipment, cost estimating and construction process design. His research interests include highway and heavy construction methods, road maintenance methods, innovations in construction process administration, engineering education, hybrid learning and online learning.

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Abstract

Industry is expecting engineering students to graduate with both strong technical skills and strong leadership skills that they can apply in the companies they join. Recent research has demonstrated wide-ranging meanings with regard to how companies define leadership. Using qualitative research methods in an earlier study, we found that personnel from engineering companies involved with hiring define *leadership* by categorizing it into five main themes or competencies: initiative/confidence, communication, interpersonal interaction, teamwork, and engagement. This study extends the prior research by developing and validating a survey instrument based on these five themes. This paper presents the development and refinement of the survey instrument by utilizing fundamentals of survey methodology and cognitive interviews. The survey contributes to our understanding of the engineering industry's needs for leadership competencies in their new hires. The prior research effort involved interviews of human resources and engineering personnel at six engineering companies. During the next phase of our project, this survey will be distributed to over 800 engineering companies to expand our understanding of the industry's needs. Findings from this pilot survey will inform engineering educators about leadership competencies of which they should focus while better preparing our students for entry-level positions in engineering and aid in the further development of this instrument. The results of this research can inform the efforts of all engineering educators that strive to embed leadership development into the engineering courses. With this research, educators will know what expectations for leadership skills their students will encounter in their entry-level positions after graduation. Further, engineering programs will be able to better articulate the leadership skills their students are developing and educate potential employers on both the technical and leadership education their students are gaining in their courses. Finally, employers will benefit from hiring engineering graduates who are better prepared for the leadership expectations in the entry-level positions.

Introduction

The engineering industry continues to emphasize the importance of engineers entering the workforce to possess leadership skills. While some studies have been conducted to define what companies are looking for in future hires and/or what academic programs are doing to prepare undergraduates for industry,^{7, 21, 22, 34} other work focused solely on *leadership* competencies and requirements.^{3, 5, 6, 9, 11, 12, 26, 27} Our qualitative study conducted in summer 2014, found that personnel from engineering companies involved with hiring define *leadership* by categorizing various knowledge, abilities, and behaviors into five main leadership themes or competencies: initiative/confidence, communication, interpersonal interaction, teamwork, and engagement. It is our goal to understand what *leadership* means to industry and to develop coursework, instruction, and experiences that will best prepare our undergraduates for opportunities in engineering.

In this paper, we will describe the development of a survey instrument that will validate and expand the findings of our earlier project to define what employers mean when they use the word

leadership as a requirement for applicants. Working with our five themes, or competencies, we created a survey instrument to determine the importance of each theme to employment in industry. The development of this survey will aid in our continued effort to understand the needs of industry and to shape engineering leadership curricula.

Background

The effort to emphasize the importance of leadership in engineering education has been enduring since the 1990s. Leadership has more recently been underscored in various engineering reports, including those by the National Academy of Engineering.^{18,19} Additionally, researchers have offered leadership skills are requisite for successful and impactful engineering careers.^{3, 6, 8, 9, 10, 11, 27} Although the evidence exists for the need of leadership development for engineering undergraduates, only 3 of the 28 engineering programs include the term *leadership* in their Program Criteria in ABET Criteria for 2014-2015. Those programs are (1) Civil, (2) Construction, and (3) Engineering Management and Similarly Named Engineering Programs.¹

Due to the work and influence of the American Society of Civil Engineering (ASCE), civil engineering and construction engineering programs lead the effort with regard to explicit identification of the need for leadership in the ABET Program Criteria. As the governing body for the civil engineering and construction engineering, ASCE continues to highlight the need for civil engineers to possess technical and professional skills. In two key publications, *The Vision for Civil Engineering in 2025*² and the second edition of the ASCE Body of Knowledge⁴, also known as BOK2, ASCE has offered strong rationale for the need of leadership development for civil engineers. ASCE recognized the global impacts of leadership by stating, “U.S. civil engineers can be catalysts in sharing the vision with the global civil engineering community.” The report continues by outlining some key actions, including “a more robust educational path for civil engineers that prepares them for leadership and provides the multifaceted non-technical skills to serve on projects affecting the public good.”² The ASCE BOK2 categorizes twenty-four outcomes for entry into the civil engineering profession. ASCE organized the outcomes into three categories: (1) foundational, (2) technical, and (3) professional, as well as identified the level of proficiency desired at various points in one’s career. Leadership (Outcome 20) was identified as a professional outcome requiring proficiency in “knowledge, comprehension, and application” at the undergraduate level.⁴

Researchers have reviewed the ABET (a) through (k) student outcomes, showing how leadership knowledge, values, attitudes, skills, and abilities may be embedded into these outcomes without the word *leadership* appearing in the ABET documents.^{6, 7, 11, 21, 26, 34} Others have focused on identifying leadership competencies.^{20, 28, 29} While there is a clear effort to study and elevate the importance of leadership development, as well as infuse leadership instruction and activities into undergraduate engineering programs, Seemiller and Murray²⁹ revealed that engineering programs contained the fewest “Student Leadership Competencies” of the 18 categories of academic programs they reviewed.

In concert with the desire to inculcate leadership in engineering programs, work to define the term *engineering leadership* has become more concentrated in the past five to six years. Graham, et al.¹² identified, compared, and contrasted over 40 engineering leadership programs. Locating

these programs and understanding how they are similar and different sparked a national conversation on this topic and served as the catalyst to bring together academic institutions to start meeting to share best practices. According to the Rice Center for Engineering Leadership²⁴ this consortium of university engineering leadership programs, otherwise known as the Community of Practice for Engineering Leadership Education for 21st Century Engineers (COMPLETE) has been meeting regularly since 2010. This body of like-minded educators and practitioners also played an instrumental role in the formation of the ASEE Leadership Division (LEAD). One of the goals of COMPLETE and the ASEE LEAD Division is to further research in this area.

Purpose

The purpose of the research project is to identify specific leadership competencies that applicants, specifically undergraduates, should possess when applying for full-time employment positions. The three-phase research uses mixed methods to answer this question. First, in-person interviews with college recruiters are conducted to explore their definition of *leadership* when listed in job descriptions. Second, the results of these interviews are synthesized and used to construct a survey for wider data collection from college recruiters. Third, it is expected that the survey results from more than 800 recipients will be analyzed to examine what leadership competencies that recruiters are seeking, and to disaggregate this understanding by the engineering field. This paper is a discussion of phase two, which includes the survey development process that will contribute a rigorous instrument to our field for identifying the specific leadership competencies undergraduates should possess upon graduation.

The study is being conducted at a large land-grant institution in the Midwest. The institution serves 35,000 students and employs 6,300 faculty and staff members. The College of Engineering contains 8 academic departments and offers 12 majors. The college hosts a large indoor career fair each semester, with approximately of 300 companies represented and 3,000 to 6,000 students and alumni in attendance each semester.

Discussion

Phase One: Recruiter Interviews

Phase one of this project was a qualitative study to interview college recruiters in an in-depth interview to discover what their respective company meant by the word *leadership* when explicitly used in a position description. Our research question was, “What do companies hiring full-time entry-level engineers mean by leadership when used in a job description?”

College recruiters were identified through a systematic approach to reviewing job posting information obtained from engineering career services personnel for the period of 1 August 2006 through 31 July 2013. A total of 16,173 jobs were posted in the university career database for all students and alumni in the college of engineering during the seven year period noted. Since our focus was on entry-level, full-time positions, the data was further analyzed to eliminate positions for internships, Co-ops, Master’s/PhD students and alumni. Table 1 shows the 7,235 job descriptions that met our criteria by year posted, as well as those that included the word

leadership. Overall, 982 (13.6%) of the job postings contained the word *leadership*.¹⁴

Table 1.¹⁴

<i>Full-Time, Entry-Level Engineering Job Postings</i>			
<u>Year</u>	<u>All</u>	<u>Leadership</u>	<u>%</u>
2006-2007	929	117	12.6
2007-2008	920	119	12.9
2008-2009	502	69	13.8
2009-2010	405	49	12.1
2010-2011	1,079	136	12.6
2011-2012	1,555	212	13.6
2012-2013	1,845	280	15.2
Total	7,235	982	13.6

Further analysis was completed to identify potential participants. Possible participants were selected from companies with job postings targeting only construction engineering or electrical engineering graduates. Rationale for selecting these two engineering disciplines was to examine similarities and differences in one discipline with *leadership* explicitly included in the ABET Program Criteria (construction) and one that did not (electrical). Six recruiters from companies using *leadership* in one or more job descriptions participated in in-depth interviews. Data saturation was achieved for the intended purpose of identifying common themes. Information about the six participants is represented in Table 2.¹⁴

Table 2.¹⁴

<i>Industry Personnel Interviewed</i>		
<u>Industry</u>	<u>Gender</u>	<u>Job Title</u>
		<u>Years at Company</u>
Construction		
Female		Human Resources Director
		9.0
Female		Director of Learning and Development
		8.5
Female		Human Resources Manager
		2.5
Electrical		
Male		Application Engineering Manager
		15.5
Female		Human Resources Representative
		25.0
Male		Manager of Substation Engineering
		15.5

Using qualitative research and analysis methods, five leadership competencies emerged: initiative/confidence, communication, interpersonal interaction, teamwork, and engagement.¹⁴ These themes were further defined by identifying key words and phrases from the transcripts of the interviews. Abbreviated descriptions are included in Table 3.

Table 3.
Leadership Themes with Definitions

Theme	Definition
Initiative/confidence	Stepping up, going the extra step, asking question, having confidence and/or self-confidence.
Communication	Possess excellent written, oral, non-verbal, and listening skills.
Interpersonal Interaction	Having people skills and the ability to build relationships and resolve conflicts.
Teamwork	Being a team player, collaborative, and a consensus builder.
Engagement	Involved in extracurricular and volunteer activities.

Phase Two: Survey Instrument Development

These emerged themes from the six in-depth interviews are the foundation for the questions in our survey instrument. This section highlights how the survey instrument was developed and refined using survey methodology and cognitive interviews.

Question development

Responses from the earlier qualitative study and research notes were analyzed to identify key words and phrases mentioned by the participants. Using the original analysis and theme mapping process, questions were developed to align with the five themes: initiative/confidence, communication, interpersonal interaction, teamwork, and engagement. A review of literature revealed a long history of many approaches to categorization of leadership competencies.^{10, 15, 16, 23, 25, 28, 29, 32} After review of the prior research and the results of the in-depth interviews in phase one, Seemiller's taxonomy^{28, 29} was selected as the best fit to discuss.

To assist with question development, a matrix was devised with dimensions of leadership competencies and Seemiller's classifications.^{28, 29} During the question writing phase, it was realized that responses relating to Seemiller's "values" would not be useful due to limitations presented by these types of questions. It was noted that industry personnel might be presented with challenges when asked to respond about the beliefs of others. Questions were written to focus on the remaining three categories of Seemiller's taxonomy: knowledge, abilities, and behaviors. Four questions were drafted for each cell in the matrix. These questions were written for survey takers to rate various knowledge, abilities, and behaviors on a six-point Likert scale¹⁷ from "Very Important" to "Not Important at All." Questions were tagged with the alphanumeric codes shown in Table 4 to track the questions and responses during this process.

Table 4.

Question Matrix

Categories/Dimension	A. Knowledge	B. Abilities	Behaviors
1. Initiative/Confidence	1A	1B	1C
2. Communication	2A	2B	2C
3. Interpersonal Interaction	3A	3B	3C
4. Teamwork	4A	4B	4C
5. Engagement	5A	5B	5C

Cognitive interviews

After developing 60 possible survey questions regarding competencies and 4 user questions, two college recruiters were identified to assist with improving the survey instrument. These participants were a project manager and project engineer from a larger heavy-construction contractor and a building contractor, respectively. The project manager had over ten years of experience as a recruiter for their company, while the project engineer had five years of experience. Participants provided consent to allow their interview to be audiotaped.

Utilizing the cognitive interview process the participants each performed a “think-aloud” interview while taking survey.^{13, 30, 31, 33} Improvements noted in the first interview were implemented before the second interview was performed. Both participants read the survey on a computer, verbalized their thoughts, and recorded their answers. The participants were audiotaped for 30-40 minutes during this process. The cognitive interviews revealed a few mechanical issues with the electronic survey, as well as seven questions that were not clear. Through this process, content validity was addressed by reviewing the survey instrument from the perspective of the survey taker and obtaining information on how the survey could be improved, including wording, grammar, order of questions, and context.

Results

The survey development process for this instrument yielded a more clear and concise instrument to enable the research team to collect the most meaningful data. Through a systematic approach to crafting and refining questions, the research team revised the survey instrument and prepared the survey for release via Qualtrics Survey Software (version 2015).

The revised survey is included in Appendix I and will be distributed to over 800 recruiters from companies who have hired a new graduate from the large Midwestern university between 2008 and 2014. This survey will serve as a pilot instrument and will be further refined after responses are analyzed. Construct validity will be determined through post-hoc tests.

Further Research

The use of qualitative research and cognitive interviews to design a survey instrument has been described in the paper and provides systematic and methodical approach for designing a survey regarding the leadership outcome that employers desire for student who are graduating from engineering programs. The responses received from this questionnaire that will yield data to

assist researchers at academic institutions to assess, refine, and develop curricula to best prepare undergraduate students for a successful career in industry. It is intended that the results from this pilot survey will serve as a starting point for creating an instrument for a broader audience.

The first author has released the survey to over 800 recipients who were identified with the help of the engineering career services unit of the previously mentioned Midwestern university. Collection and analysis of the data will occur in the spring and summer of 2015. Results of the survey will be analyzed using with both basic and more advanced statistical techniques, including student t-tests, ANOVAs, and multivariate regression.

Conclusion

Industry representatives continue to cite the need for leadership skills in new hires and this need has been acknowledged by academia, as evidenced by the number of formal and informal engineering leadership programs identified by Graham, et al.¹² in 2009. It will be desirable for these programs to know the relative importance of leadership competencies expected by recruiters as they develop and revise curricula for undergraduate and graduate engineering students. The creation, use, and modification of this survey instrument will help with the quest for knowledge regarding engineering leadership competencies. This important vein of inquiry is identifying the leadership competencies expected by recruiters hiring full-time, entry-level engineers.

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Appendix I – Initial Survey Questions

Introduction

Introduction Statement

Participation agreement

- Agree
- Disagree

Leadership Competency Questions

How important are the following for an applicant to possess when applying for a full-time, entry-level engineering position with your company?

* Some of these questions may be similar to those you have already answered.

	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Not at all Important
Understand my company's products and services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have excellent writing skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Create positive rapport with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know how to delegate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participated as a member of a student organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Be a self starter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrate participation in volunteer service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interact positively with others on a team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conduct an effective meeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well connected to others in the industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appreciates the benefits of being involved in extracurricular activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recognize that diversity is an asset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have knowledge on how to deliver effective feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrate active listening skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Display commitment to helping others in the community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possess confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have awareness about strategies to boost self confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asks questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Build relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have knowledge about group dynamics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledgeable about my company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motivated to learn new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know how to write a professional email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have knowledge about active listening techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engage effectively in difficult conversations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Be cooperative with team members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participated in community service activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know how to treat others with respect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motivated to step up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Able to resolve a conflict	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How important are the following for an applicant to possess when applying for a full-time, entry-level engineering position with your company?

* Some of these questions may be similar to those you have already answered.

	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Not at all Important
Provide constructive feedback to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have received training in teamwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspire others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performed community service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shows commitment to the team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have knowledge about "self" to enhance self confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know how to prepare an effective presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintain eye contact during a conversation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Represent a colleagues' position when they are not present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrate a successful event they have planned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influence others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Go above and beyond what is asked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicate effectively with clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understand the roles and responsibilities of others on the team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performed successfully as a cabinet member of a student organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understand they should collaborate with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Able to facilitate a discussion where there are differing opinions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know how to write a memo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connects with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrates knowledge about the benefits of participating in volunteer service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motivated to understand others' circumstances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know the importance of being involved in activities outside of the classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Share an example of a time they have served on a team and delegated successfully	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Be empathetic towards others on the team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Takes the initiative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Display success as a leader of a student organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrate knowledge of the value of getting involved with professional organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knows how to positively interact with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrate excellent oral presentation skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Willing to ask for help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

User Questions

What is your job title?

How long have you worked with your current company?

- Less than 1 year
- 2-5 years
- 6-10 years
- More than 10 years

My company hires students from the following engineering programs (select all that apply):

- Aerospace
- Agricultural
- Biological Systems
- Chemical and Biological
- Civil/Environmental
- Computer
- Construction
- Electrical
- Industrial and Manufacturing Systems
- Materials
- Mechanical
- Software

The last time my company attended the [University] Engineering Career Fair was:

- Spring 2015
- Fall 2014
- Spring 2014
- Over one year ago
- Over two years ago
- Over three years ago
- Never
- I don't know (excluded from analysis)

Thank you for participation in this study.