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What is the Engineering Majors Survey?

27

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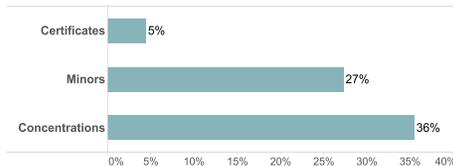
UNIVERSITIES ENGINEERING STUDENTS

The Engineering Majors Survey is a longitudinal research project looking at which educational environments/ experiences influence engineering students' innovation and entrepreneurial interests, abilities, and achievements.

Focal Respondents

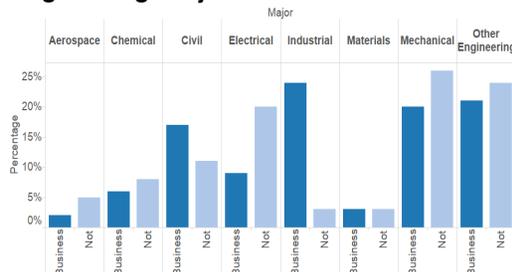
Respondents indicated pursuing one of 39 unique engineering majors. A total of 2,500 respondents were pursuing concentrations within those majors. Respondents were also asked to write-in any minors or certificates pursued in order to generate a complete picture of students' academic programs.

Percentage of respondents pursuing a certificate, minor, or concentration



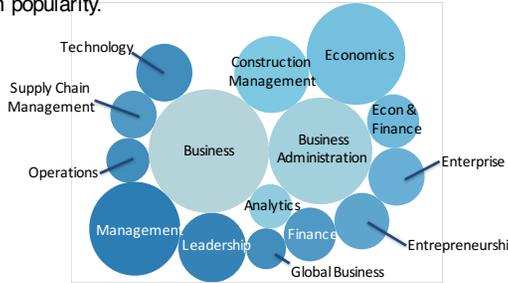
Among these certificates, minors, and concentrations, we identified those that are related to business. A total of 486 engineering students (6.8% of the sample) were participating in business concentrations, minors, or certificates.

Business program participation by engineering major



Breakdown of Business Programs

Concentrations, minors, and certificates were grouped into the following business-related areas based on write-in popularity.



The most popular fields of study within the flagged programs are business (20.2%), economics (17.3%), business administration (14.8%), and management (11.3%)

Extracurricular Involvement

Leading or starting clubs and organizations

Which of the following you have done during your undergraduate years	Business Flagged		Not Flagged		p-value
	Number of students making the experience (out of 485)	%	Number of students making the experience (out of 6712)	%	
Led a student organization	171	36.90%	1577	25.10%	< .001
Started or co-founded a student club or other student group on campus	56	12.10%	526	8.40%	0.008
Started or co-founded your own for-profit or non-profit organization	27	5.80%	143	2.30%	< .001

Participation in clubs and organizations

Which of the following you have done during your undergraduate years	Business Flagged		Not Flagged		p-value
	Number of students making the experience (out of 485)	%	Number of students making the experience (out of 6712)	%	
Participated in a business or entrepreneurship club	89	19.20%	415	6.60%	< .001
Participated in a community service-based club	136	29.40%	1483	23.60%	0.006
Participated in other student clubs or groups in engineering	230	49.70%	2733	43.40%	0.01
Participated in other student clubs or groups outside of engineering	238	51.40%	2710	43.10%	0.001

Career Goals

The Career Goals-Innovative Work scale is composed of six items asking how important it is for the respondent to be involved in the following job or work activities in the first five years after graduation.

1. Searching out new technologies, processes, techniques, and/or product ideas
2. Generating creative ideas
3. Promoting and championing ideas to others
4. Investigating and securing resources needed to implement new ideas
5. Developing plans and schedules for the implementation of new ideas
6. Selling a product or service in the marketplace

	Business Flagged		Not Flagged		p-value
	Mean	SD	Mean	SD	
Career Goals-Innovative Work	2.7	0.7	2.5	0.8	0.001

The scale ranges from 0 (Not important) to 4 (Extremely important). Exploratory factor analysis results suggest that the six items loaded on one factor. The scale of Career Goals-Innovative Work is reliable with Cronbach's coefficient alpha of 0.86. The score of Career Goals-Innovative Work was calculated by taking the average of the six items.

Discussion

The findings suggest that engineering students participating in Innovation & Entrepreneurship programs—business-focused programs in particular—in fact are more inclined than are other engineering students to found, lead, and participate in clubs and organizations, as well as pursue post-graduation careers characterized by a high degree of innovative behaviors. Although the absolute percentage of engineering students enrolled in business-related minors, concentrations, and certificates is small, these findings are suggestive in terms of the potential impact of such programs on student development.

Acknowledgements

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