Technology Degree, Engineering Career

Completing the Picture

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Abstract

We had previously proposed the slogan:

The degree is Engineering Technology, the career is engineering

as a reality that currently exists in industry.\textsuperscript{1,2} And, that four-year (bachelor) TAC of ABET-accredited engineering technology programs constitute a separate and equally valid path to engineering careers in industry. What remains though is the question of “Why is it possible that an academic preparation of either a BS degree in engineering or a BS from an ABET accredited technology program allows someone to pursue an engineering career?”

The common expectation for engineering positions is the requirement of a four-year engineering degree. While that is true, what is also true is that there is another path to an engineering career, a four-year ABET accredited engineering technology degree. The reason for an alternate path rests upon at least three core facets:

1. A body of technical knowledge is required for an engineering career and the specifics of that body of knowledge have considerable flexibility in content and variety over the span of preparation necessary for engineering positions and functions.
2. Much of that body of technical knowledge has a significant half-life because of rapid changes in technology. Hence, the ability to advance one’s skills through continuous learning is a key component that provides career viability and value.
3. Further, the mastery and practice of non-technical professional skills such as communication, teamwork, problem solving, and leadership are integral components for long-term career success.

Engineering technology can and does provide all of these aspects, provided the curriculum is rigorous with a sound content of math, science and technical material. It really is a combination of technical knowledge, professional skills, and an ability to learn by an iterative process of
problem solving, reasoning, and developing solutions that provide value to a company over a length of time that really constitutes and defines an engineering career.

The results of having attained a four-year BS degree in either engineering or engineering technology should provide a knowledge base that will be a foundation for a lifetime. This knowledge base is what allows us to learn and advance to a higher level of understanding. The specifics taught in academia are seldom the identical problems faced in industry. Hence, *life-long learning is really the central issue and not specific courses taken as an undergraduate*. However, rigor and reasonable depth of coverage in the academic curriculum is essential to assure skills such as analytical thinking and problem solving are adequately developed and practiced. There is every reason to argue that engineering technology, when done properly in accordance to the TAC criterion of ABET, will result in the launching of a successful engineering career.

One basis of arguing on behalf of engineering versus engineering technology is the greater use of advanced mathematics. Yet the large majority of practicing engineers will attest to the limited use of calculus per se throughout their career. In addition, the ubiquitous use of advanced software has served as an equalizer whereby engineers that are graduates from an engineering or engineering technology program are unfamiliar with the underlying details of the algorithms that drives software. However both are able to successfully apply software to solve technical problems.

What is also often overlooked is that it is even possible for professionals with little or no technical educational credentials to function quite well in the technical arena. This again is a demonstration of the importance of life-long learning and that the non-technical professional skills are also paramount to a successful career.

Bottom Line: Graduates of four-year ABET accredited engineering technology programs are in a position to compete successfully with engineering graduates in the majority of available engineering career paths.

**Bibliography**

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**Biographical Information**

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