

## **Who Speaks for Engineering Technology - The Role of the Engineering Technology Council**

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### **Abstract**

The national engineering technology community needs a voice. This article explores the role of the Engineering Technology Council (ETC) of the American Society for Engineering Education (ASEE) in providing a voice for the national engineering technology community. The article gives a brief history of the ETC and looks into what the ETC might do to enhance the position of engineering technology in the engineering spectrum,

### **Introduction**

In 1970 Winston D. Purvine became the first chair of the Engineering Technology Council. The ETC was created to assess and recommend policies affecting the overall administration of the Accreditation Board for Engineering and Technology (ABET) accredited technical colleges and schools. The ETC can also be used to provide forums for discussion and an information exchange concerning problems and experiences of technical colleges and institutions, to represent and to speak on behalf of member technical colleges, and to cooperate with other segments of the Society on matters of common interest.<sup>1</sup>

Although the ETC and the Engineering Technology Division (ETD) represent and are the voice of the engineering technology community within ASEE, it is generally recognized that the ETC has not become an effective voice for engineering technology the way the Engineering Dean's Council has become for the engineering community. This is unfortunate since the first guiding principle of the ETC in performing its mission of promoting quality education in engineering technology is to speak collectively for engineering technology institutions.<sup>2</sup>

### A B E T

Engineering technology has especially lacked an effective voice within the Accreditation Board for Engineering and Technology. This goes far beyond the requirement within ABET that engineering technology programs can not advertise their programs as educating students who might become engineers even though many graduates of ABET accredited four-year engineering technology programs eventually get jobs in industry that have the title "engineer" in them. In fact, in most states a graduate of an ABET accredited four-year engineering technology program has a path available to become a Professional Engineer.<sup>3</sup> Nevertheless, at a recent meeting of the ABET Board, the following definition of engineering technology was voted down:

"The engineering technologist and engineering technician are well founded in the knowledge of mathematics and natural sciences and devoted to the implementation and extension of existing technology for the benefit of



humanity. Engineering Technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion on the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions. Among the essential characteristics of engineering technology graduates are mastery of the technology of the selected discipline, overall technical competency, adaptability, flexibility, effective communications capabilities and interpersonal skills, creativity in problem solving, effective teamwork skills, ethical responsibility, understanding and appreciation of diverse cultures and ability to continue learning throughout a career of expanding professional capacity.”

Most people within the engineering technology community consider this a reasonable definition of engineering technology education and of what the graduates of this education do. Nevertheless, the representation of engineering technology within ABET was such that this definition could not get approved. The ETC should find ways to increase the representation of engineering technology within ABET so that the status of our profession can be increased. Considering the fact that approximately one-third of the total of ABET accredited programs are engineering technology programs, it is only equitable that engineering technology has a strong voice within ABET.

To challenge the structure of ABET in a meaningful way, however, a consensus needs to be developed within the engineering technology community. The ETC should work to effect this consensus and then implement the results. The authors personally like the proposal made by Steve Cheshier, the president of the Southern College of Technology, in his 1985 article in Engineering Education, “A Modest Proposal Regarding the Future of Engineering Technology Education in America.”<sup>4</sup> Dr. Cheshier proposed that engineering technology be called “applied engineering” and engineering be called “engineering science.” This would clear up a lot of the problems we have with semantics today.

Industry has never accepted the term “technologist” for the graduates of four-year engineering technology programs. It is too close to the term, technician, which does not require a four year degree. Considering the fact that these programs have been accredited by ABET and its predecessor, the Engineering Council for Professional Development (ECPD) for almost thirty years, it is doubtful that they ever will. Nevertheless, there is much opposition by the Engineering Dean’s Council to these name changes. The ETC needs to find an effective way to counter this opposition. A start would be to work with the Technology Accreditation Commission (TAC) Executive Board of ABET to devise a strategy of opposition to the Engineering Dean’s Council’s position.

### **Status of the ETC**

For the ETC to effectively counter positions of the Engineering Dean’s Council to which it disagrees, the status of the ETC must increase to the point where its own views are taken seriously. The Engineering Dean’s Council is fairly well organized and meets on a regular basis to formulate positions. The ETC should do the same. A start has been made in this direction recently with the formation of the ETC Listserv. Information on this list server is available on the World Wide Web home page of ASEE. The listserv can serve as a forum for discussion between the institutional representatives of the ETC.

One of the main reasons that the ETC suffers a status problem is because of the membership itself. According to the Engineering Technology Council Operating Procedures Manual, “Membership of ETC shall consist of all the Technical Colleges as defined in Article I, Sections 2b and 2d of the ASEE Bylaws.”<sup>2</sup> This in itself is a good provision since it is important that two-year as well as four-year institutions have representation



within the ETC. In fact, more two-year programs in engineering technology than four-year programs are accredited by ABET.

The next membership provision states, however, that “an institutional representative shall be designated by the administrative head of each of the Technical College members from among persons who are individual members of ASEE. ” The authors believe that this should be changed so that the ETC representative is the highest academic officer within the engineering technology program at the institution being represented. If there is a college of engineering technology at the institution in question, this officer would be the dean. If the engineering technology programs are departments within a college with a multitude of programs, this would be the academic chair. With this change, the individual representatives would have more status which would give more status to the ETC.

### **Professional Organizations**

For engineering technology to have more say in the engineering community, the ETC should encourage faculty in its member institutions to get involved in professional organizations. Organizations such as the Institute of Electrical and Electronic Engineers (IEEE), the American Society of Mechanical Engineers (ASME), and the American Society of Civil Engineers (ASCE) have a great deal of influence for setting the agenda of the engineering profession. They make up the constituent bodies of ABET and greatly influence policies set by ABET. In fact, these constituent bodies, based on their representation, select the members of the EAC (Engineering Accreditation Commission) and the TAC within ABET as well as selecting the program evaluators for the different engineering and engineering technology disciplines.

A few engineering technology faculty active in these organizations can influence the accreditation policies set by these organizations and can help effect a better relationship between engineering and engineering technology. The future directions of these organizations will be set by the younger members. ETC could have the most positive effect on them by encouraging its younger engineering technology faculty to become actively involved.

#### NSPE

A reasonable route to registration is important for the status of the engineering technology profession. Even if an engineering technology graduate chooses not to go through the registration process, the possibility of registration is a great boon to recruitment and the status of the field in general. No organization has more say in this process than the National Society of Professional Engineers (NSPE). It therefore behooves engineering technology faculty and graduates to get actively involved in NSPE. The ETC should encourage its institutional representatives and faculty in its member institutions to get involved in NSPE.

Historically the NSPE has been no great friend of engineering technology. Although a graduate of an EAC of ABET accredited engineering program can become an associate member of NSPE, a graduate of a TAC of ABET accredited engineering technology program must first pass the Fundamentals Examination (FE). There are about ten states that do not allow graduates of TAC of ABET accredited engineering technology programs to take the FE. Although students can be student members of NSPE, they can not continue their membership in NSPE upon graduation. In 1990 when one of the authors was a member in NSPE’s Membership Committee, he was instrumental in NSPE creating an affiliate membership category for engineering technology graduates . Although this is one small step for achieving equality for engineering technology graduates, it



shows what involvement by an engineering technology professional can do. The ETC should encourage this involvement.

### Conclusion

Engineering technology suffers from a status problem within the engineering profession. The ETC should address this problem by becoming more active. The ETC should help formulate a unified position on issues important to the national engineering technology community. Its leadership role uniquely positions ETC for formulating this unified position. However, more dialog among its members is needed.

The ETC also needs to encourage its institutional representatives and the faculty of its member institutions to get more involved in professional organizations including the discipline specific professional organizations, ABET, and NSPE. In so doing, the engineering technology community can have more say in the engineering profession.

### Bibliography

1. American Society for Engineering Education. (1994). A SEE Membership Handbook. Washington, DC: Author.
2. American Society for Engineering Education. (1995). Engineering Technology Council Operating Procedures Manual. Washington, DC: Author.
3. Frank, R. R., & Zeigler, T. W. (1984). Registration of Engineering Technology Graduates. Journal of Engineering Technology, 1(2), 41-42.
4. Cheshier, S. R. (1985, May). A Modest Proposal Regarding the Future of Engineering Technology Education in America. Engineering Education, pp. 706-712.

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