

# PubComm Proposal: Linking SSIT to ABET Criteria

## Background.

- 1) The 2005 IEEE review of *Technology and Society* (T&S) magazine included this recommendation: “Consider having the ABET<sup>1</sup> criteria become a more visible focus.”
- 2) In 2008, I submitted a rough draft of a proposal to the SSIT Board of Governors (BoG) with regard to strengthening the relationships between SSIT and
  - IEEE leadership (including TAB)
  - Other IEEE societies
  - non-IEEE technical professional societies
  - non-IEEE non-technical professional societies.

As part of this 2008 proposal, I recommended several actions that would enable SSIT to assist engineering educators in meeting ABET criteria f, h, and j (hereafter referred to as *fhj*; see below for more details). This was a virgin proposal on my part; *i. e.*, I was unaware of the 2005 T&S review recommendation when I created my 2008 proposal.

This proposal fell by the wayside as PubComm’s focus shifted to SSIT’s financial crisis survival mode.

- 3) In 2010, we had another IEEE review of T&S magazine. Much to my embarrassment, one of the reviewers asked how we had responded to the 2005 recommendation regarding ABET criteria. We had to admit we had done nothing. We told the 2010 reviewers that this time we would do something
- 4) SSIT currently remains in the financial crisis mode. PubComm’s proposed contribution to relieving this crisis is to convert T&S magazine to online publication. PubComm has nearly completed their contributions to this online conversion process, and we are in the process of finalizing our report to the SSIT BoG.
- 5) Thus, with time on our hands, we have generated the following new proposal for linking T&S to ABET criteria *fhj*.

## A brief review of ABET and its accreditation criteria.

Colleges and universities may choose to have their engineering and technology programs reviewed and accredited by a national accrediting agency. This review of

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<sup>1</sup> ABET (Accreditation Board for Engineering and Technology) is the accrediting agency for college engineering and technology programs. It, and the criteria referred to, will be discussed in more detail in the next section.

academic engineering programs was originally performed by ECPD (the Engineers Council for Professional Development, founded in 1932). In 1980, ECPD was renamed the Accreditation Board for Engineering and Technology (ABET)<sup>2</sup>.

In the late 1990s, ABET made a major revision of its accreditation process and changed its focus from what is taught to what is learned (outcomes). From an academic's perspective, the core of the review process is contained in (General) Criterion 3, which contains a set of student outcomes that all engineering and technology program graduates must satisfy for the program to be accredited.

Included in Criterion 3 are outcomes that directly relate to SSIT's core interest -- i. e., social implications of technology (SIT). The engineering professors responsible for seeing that the SIT outcomes are achieved by all program graduates at their institution are continually searching for assistance in this area. Thus, SSIT can perform a great service for our academic colleagues by directly supporting their efforts to meet the SIT requirements of ABET Criterion 3. Such an effort by SSIT should strengthen our position and reputation both within and outside the IEEE.

There are many ways to meet this challenge. This document will introduce and explore only one: linking appropriate T&S magazine articles to the SIT outcomes as detailed below. This appears to be a good starting point for our efforts since it is simple and rapid to implement while also having the potential to be very effective.

At the upcoming March 2011 BoG meeting in New Brunswick, we will open the floor to new, broader, SSIT-wide initiatives in this area after the (assumed) approval of this first step -- which basically falls within PubComm's scope.

### **Discussion of SIT content of ABET Criterion 3.**

A minor but irritating complication occurs because ABET Criteria are not static; they are aperiodically reviewed and revised. Thus, if we tie our process directly to ABET's Criterion 3 SIT content and language, we will have to frequently revise our process as well. Although this could be done, it would put an additional burden on volunteer staff who are already overworked. It could also complicate searching and bookkeeping since exact wording of items would likely be changing as criteria are revised.

So we propose stabilizing our process by attempting to follow the drift but not the details of ABET's Criterion 3 SIT content. This process will probably lead to occasional revisions on our part, but the revisions should not be nearly as frequent as ABET revisions. The basic idea behind this process should be made clear by referring to the two existing (old and new) ABET Criterion 3 SIT content outcomes. Please consult the table below.

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<sup>2</sup> Much of the basic information in this section came from the ABET website.

**Table of ABET Criterion 3 SIT content**

<b>ABET Engineering Criteria 2000</b>	<b>2009 - 2010 Criteria for accrediting Engineering and Technology Programs</b>
Engineering programs must demonstrate that their students attain:	Each program must demonstrate that graduates have
f. an understanding of professional and ethical responsibility.	i. an ability to understand professional, ethical and social responsibilities.
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.	j. a respect for diversity and a knowledge of contemporary professional, societal and global issues
j. a knowledge of contemporary issues.	

Considering the content of both columns -- plus relying on years of past experience in undergoing the ABET review process -- we propose the three following general categories as encompassing the intent of ABET's SIT outcomes while being broad enough to survive ABET revisions.

1. **Professionalism.** In such contexts as
  - professional ethics
  - engineering practice
  - social responsibilities
2. **Societal effects of technology.** The implications and impact of technological solutions on society at large within contexts such as
  - globalization
  - ecology
  - economy
  - culture
3. **Interdisciplinary efforts.** Efforts where substantive contributions are made by both technical and nontechnical personnel with diverse backgrounds in such contexts as
  - policy generation/evaluation
  - product design/assessment/redesign
  - education
    - ◆ engineering/technology programs
    - ◆ interdisciplinary courses at college level
    - ◆ K-12
  - Non-government organizations (NGOs)

We believe that the first two categories listed are straightforward derivatives of the preceding ABET Criterion 3 table. Category 3 (interdisciplinary efforts) may seem like a stretch, but it basically addresses (and possibly strengthens and expands) the “diversity” component in column 2, item j of the table.

These three categories serve as the basis of our proposed ABET Criterion 3 form. This form will be sent to the primary author of each submission that is accepted for publication in T&S. See below for clarification and a proposed form.

### **Proposal for linking T&S to ABET accreditation criteria.**

The basic idea behind our proposal is to have T&S authors classify the ABET Criterion 3 SIT content of their accepted article according to the three categories listed above. The authors are also given the option of providing additional information that could assist and benefit users of this material in classrooms and other venues.

Please go to the last three pages of this document to view the (prototype) form that would be sent to the primary author of each article accepted for publication in T&S magazine. This form is intended to be self-contained, and it should provide everything you need to know about the process (with the exception of a few minor process issues that need to be worked out).

Results from the completed form will be published with the article, including information on accessing any selections in Section 3 of the form.

The main purpose of this proposal is to provide assistance to engineering faculty members who have been assigned ABET Criterion 3 SIT content duties by their department. My experiences from attending ASEE Annual Conferences and IEEE/ ASEE Frontiers in Education conferences indicate that many of these teachers are very grateful for any pertinent assistance in this area.

In addition, as the form indicates, some articles that T&S publishes are certainly suitable for being used at the pre-college level to stir up interest in SIT issues (i. e., social implications of technology as a topic of study rather than SSIT = an IEEE society). As our most optimistic outcome, perhaps we could contribute to establishing interest in SIT issues within society itself -- i. e., we might contribute to making the often culturally invisible SIT considerations culturally visible.

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Proposed Form Below

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## ABET Criterion 3 SIT Outcomes

Congratulations for having your article accepted for publication in *Technology and Society* magazine. We invite you to complete this form if your article has significant ABET Criterion 3 Social Implications of Technology (SIT) content (see immediately below for discussion of ABET SIT content). If this form is not pertinent to your article, or if you are not interested in participating, simply disregard this form.

By ABET SIT content, we are referring to: Engineering Criterion 3, outcomes f, h and j for *ABET 2000*; and Criterion 3, outcomes i and j for *ABET 2009-2010 Criteria for accrediting Engineering Technology Programs*. For simplicity, clarity, and convenience, we have reclassified these ABET outcomes into three broad categories for the purposes of this form. These three categories are listed below along with example contexts. Please note that these contexts are example contexts and not definitive contexts; i. e., contexts in each category are not limited to those listed.

1. **Professionalism.** In such contexts as
  - professional ethics
  - engineering practice
  - social responsibilities
2. **Societal effects of technology.** The implications and impact of technological solutions on society at large within contexts such as
  - globalization
  - ecology
  - economy
  - culture
3. **Interdisciplinary efforts.** Efforts where substantive contributions are made by both technical and nontechnical personnel with diverse backgrounds in such contexts as
  - policy generation/evaluation
  - product design/assessment/redesign
  - education
    - ◆ engineering/technology programs
    - ◆ interdisciplinary courses at college level
    - ◆ K-12
  - Non-government organizations (NGOs)

**Article title:**

**Primary author's name:**

**Section 1: Article SIT content.**

<b>My article has significant content for the following categories of ABET SIT content: (check all that apply)</b>	✓
1. Professionalism	
2. Societal effects of technology	
3. Interdisciplinary efforts	

**Section 2: Knowledge and interest level required of article reader.**

The prerequisite knowledge and interest level required for a reader to benefit directly from the content of this article corresponds to the following categories:

<b>College level (check all that apply)</b>	✓
Instructors/Professors	
Administrators	
Junior/senior students	
Freshmen/sophomore students	
<b>Secondary school level (check all that apply)</b>	✓
Teachers	
Administrators	
Students	

**Section 3: Supplementary material.**

If you are willing to create and provide supplementary material and support, please complete this section.

<b>Online support (check all that apply)</b>	<input checked="" type="checkbox"/>
Suggestions for classroom use of the article	<input type="checkbox"/>
Lesson plan based on SIT content of article	<input type="checkbox"/>
Blog for discussion of SIT content of the article	<input type="checkbox"/>
<b>In-person support (check all that apply)</b>	<input checked="" type="checkbox"/>
Real presentation on article content at inquirers location	<input type="checkbox"/>
Virtual presentation on article content at inquirers location	<input type="checkbox"/>
Interested in becoming an SSIT Distinguished Lecturer	<input type="checkbox"/>

If you have checked any box in Section 3, you will be contacted by T&S staff or an SSIT Board member who will provide details on implementing any checked item. Please provide contact information below.

email:

phone number(s):

**\*\*\*\*\* PubComm 2011 Report 2 \*\*\*\*\***

Submitted by:  
Robert Whelchel  
Chair, SSIT Publications Committee  
21 March, 2011