

## Creating a Path for Licensure for Engineering Technology Graduates

Walter W. Buchanan  
Oregon Institute of Technology

### Abstract

For proponents of the allowance of graduates of engineering technology programs to become Professional Engineers, a disturbing trend is developing. In the past fifteen years the number of states that allow a path for licensure for engineering technology graduates has dropped from forty<sup>1</sup> to thirty-five.<sup>2</sup> Much of the reason for this has been a campaign by the National Society of Professional Engineers (NSPE) and now the new proposed “Engineering Licensure Model”<sup>3</sup> that would prohibit a path for licensure for these graduates. This article will show an effective way of combating this movement.

### Introduction

Less than one in five engineers in the United States is a registered Professional Engineer. Also, the membership of NSPE has been declining in the past ten years with a loss of membership of over 10,000. Nevertheless, many engineering technology educators feel that it is important that their graduates have a chance to become Professional Engineers, if they so desire.<sup>4</sup> Although most engineering technology graduates will never need to be registered, it is important that a path for licensure be preserved. The reason for this is that many of these graduates can be made to feel that they are second-class citizens if they have no path to licensure. This feeling can have a negative impact on recruiting efforts if potential students become aware of the fact that they can not get registered if they have an engineering technology degree. Although enrollments in engineering programs in general have been down in recent years, enrollments in engineering technology programs in particular have suffered. For the period of 1987 to 1996, engineering degrees awarded has been down by 14 percent while engineering technology degrees during the same period has been down by 23 percent.<sup>5</sup> The trend towards not allowing licensure of engineering technology graduates may play a role in this difference.

With the problem defined, the question arises as to its solution. The author has felt for many years that involvement in NSPE by engineering technology educators is important since NSPE has great influence on state engineering registration boards. However, although the author has made some headway in convincing some members of NSPE that engineering technology graduates should be allowed a path to licensure, the position of NSPE will not change unless a significant number of engineering technology educators join and work within NSPE for a change in its policy. This has not happened. Moreover, it is at the state level itself that the “rubber hits the road” for influencing state registration boards as to their examination admissions policy. Fighting the battle state by state at the state level may therefore make more sense. Individual

state registration boards must be convinced that it is important that engineering technology graduates should be allowed to sit for the Fundamentals in Engineering (F.E.) examination. To do that, the boards must be convinced that engineering technology graduates are qualified to sit for this examination. The author is convinced that this can be done if the registration boards are shown the rigor the baccalaureate Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET) program.

Promoting other engineering technology graduates can be counterproductive due to the lack of rigor in some other programs. In fact the weakness in some non-TAC of ABET engineering technology programs can give engineering technology a bad name in general. For this reason, it behooves all supporters of engineering technology education to encourage more engineering technology programs to seek TAC of ABET accreditation. When employers are not able to fill their ranks with TAC of ABET graduates, they turn to other institutions offering engineering technology programs. Many times problems then arise because these graduates do not have an education equal to a TAC of ABET program. This then gives all engineering technology programs a bad reputation.

### **Influencing State Registration Boards**

In influencing state engineering registration boards, a good model to follow is that that has been employed successfully by Professor John Weese of Texas A&M University in the state of Texas and before that in the state of Virginia. Dr. Weese started by cultivating a key member in the respective state's registration board. He then convinced that member of the quality of the engineering technology program he was representing by making a presentation to him of the engineering technology programs that Dr. Weese was involved with. This should not be a difficult task due to the rigor of TAC of ABET engineering technology programs.

Also, it is important to not try to push for registration for associate degree program graduates, even if they are TAC of ABET programs. These programs would fall in the same category as two-year pre-engineering programs, the graduates of which are not allowed to sit for the F.E. examination in most states. Once the key board member was convinced of the quality of the program, it was then easy to get the whole board to go along with allowing TAC of ABET graduates to sit for the F.E. examination. A typical registration board will tend to go along with advice from its key member or members.

Once the registration board is convinced, however, it is important to maintain contact. Opponents of engineering technology registration will never let up and so it is essential to not let up on the pro side either. Contact should be maintained with the board in every way possible. It is helpful to have a large proportion of engineering technology faculty registered. This should not be difficult since currently more engineering technology faculty are registered than engineering faculty. It is also a good idea to encourage the board members, especially the executive director, to visit your program. One vehicle for doing this is to invite an observer from the registration board to come along when you have your TAC of ABET accreditation visit. Encouraging faculty to do continuing professional development is also a good idea, even if it is not required in the respective state. Also, membership in NSPE and the state professional engineering organization is important as a way of increasing engineering technology visibility.

Being active in the state organization is an even better idea. It is almost always easier to influence an organization from the inside than from the outside. The author has certainly found this to be the case in the four different state professional engineering organizations in which he has been involved, and in one state, it really paid off.

### **Preparing Your Students for the F.E. Examination**

Interestingly enough, the procedure followed above is only the beginning of the process. Once the registration board is convinced that engineering technology graduates should be allowed to sit for the F.E. examination, it is important that they maintain a respectable pass rate. This can be done by setting in place a good review course and encouraging students to take it. At Texas A&M a for credit course has been designed for this purpose.

Although it is not possible to require students to take such a course, with careful counseling Dr. Weese found that most students interested in registration would do so, and also take the course seriously. This is because engineering technology students realize that their program is not specifically tailored for the taking of the F.E. examination. The end result was that the engineering technology students have been able to maintain a pass rate for the F.E. examination that compares very favorably to engineering students and in comparison to some engineering colleges, even better. This is because many engineering students do not prepare adequately for the examination.

### **Alternative Strategies and Solutions**

Due to the politics involved, it may not be possible to convince a state engineering registration board that engineering technology graduates should be allowed to sit for the F.E. examination. The question then arises, what next? If it is not possible to get the registration board to allow engineering technology graduates of a TAC of ABET program to sit for the examination, it may be possible to get them to let the engineering technology graduates sit for the examination if additional courses are added to the curriculum. This apparently has worked in the state of Oregon.<sup>6</sup> A presentation was made before the Oregon State Board of Examiners for Engineering and Land Surveyors (OSBEELS) by administrators at the Oregon Institute of Technology in which a Professional Engineering option was proposed. This option would add about a quarter term credit hour of courses to the TAC of ABET baccalaureate degree such that the student would have a program substantially equivalent to an EAC (Engineering Accreditation Commission) of ABET program. OSBEELS has agreed to evaluate students from such a program on a case-by-case basis to see if they will be allowed to sit for the F.E. examination. This strategy may work in other states as well where the policy is to allow EAC of ABET graduates or equivalent to sit for the F.E. examination.

In light of all this, it is important to counsel a student as to his or her options. If the student's primary goal is to become a Professional Engineer, and this is indeed important in the civil engineering area, the student should be counseled to get an engineering degree. At the very least, the student should be counseled as to the problems he or she may face if registration is desired with an engineering technology degree. Since our students tend to like the applied hands-on nature of our programs, they may well decide anyway that they still wish to get an

engineering technology degree. However, in all fairness to our students, they should be warned of possible registration problems.

### **Conclusion**

Although the trend does seem to be towards limiting registration as a Professional Engineer for engineering technology graduates, the battle is far from lost. By employing the strategies outlined in this article, the tide can be turned. Many employers like the abilities of engineering technology graduates in that they can “hit the ground running.” If the graduate also desires or finds necessary registration as a Professional Engineer, a path for licensure should be preserved. The strategies outlined in this article can preserve that path.

### **Bibliography**

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WALTER W. BUCHANAN

Dr. Buchanan is Professor of Electronics Engineering Technology and Dean of the School of the Engineering and Industrial Technologies at the Oregon Institute of Technology. He received his BSE and MSE from Purdue University, and his Ph.D. and J.D. from Indiana University. Walt is a P.E. and in ASEE is Vice Chair for Programs of ETD. He has written over 50 papers, and is a Member of TAC of ABET and Secretary of IEEE's CTAA.