Industrial Partnerships at Western Kentucky University

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1. Introduction

Western Kentucky University, like many smaller regional institutions, has limited resources to provide all of the necessary tools to deliver an ideal Civil Engineering Technology/Construction Management (CET/CM) curriculum. Since the programs in the Engineering Technology department are undergraduate only and teaching is the driving force, research generated dollars are very limited. Since many of the larger research based institutions utilize a portion of research dollars to purchase and upgrade equipment, software, computers, and pay student employees, this puts Western at somewhat of a competitive disadvantage. To deal with this issue, industrial partnerships were identified to help provide valuable resources to the curriculum. Knowing that no partnership will work without there being advantages to both sides, the partnership also involved providing the industrial partner with much needed technical support wherever possible to create a collaborative relationship. To that end, WKU, in partnership with Scottys Contracting, created the Construction and Engineering Technical Assistance Center.

2. The Construction and Engineering Technical Assistance Center (CETAC)

A gift from Scottys Contracting in the amount of $100,000 provided the necessary support to create CETAC. The primary functions of the Center from the university’s standpoint are 1) To provide support for faculty to engage in professional consulting activities involving students, 2) To gain access to the firms state of the art construction materials laboratory for instructional purposes, and 3) To provide release time to faculty to engage in scholarly activities in accordance with the mission of the department. The primary functions of the Center from the firms standpoint are 1) To gain access to the wealth of education and experience of the engineering faculty, 2) To expose the students to the firms specific area of expertise within the construction industry, and 3) As a recruiting tool for prospective employees. The early results of CETAC have been very positive. Multiple grant contracts that directly involve students in applied research have been awarded to CETAC. The program has been able to expand and improve its educational mission within the constraints of the current resources.

3. Benefits to the University

Scottys Contracting is a large construction firm specializing in asphalt paving and earthwork. Based on the nature of their business, they must have a state-of-the-art materials laboratory to fulfill the requirements of many of their state funded projects. One component of the creation of CETAC included utilizing this laboratory as an extension of WKU’s materials laboratory. Since
Scotty's office is close to campus and they have a fully equipped classroom within their laboratory for the training of their own personnel, it became an ideal place to teach construction materials related courses utilizing their state-of-the-art equipment. This virtually doubled WKU’s laboratory space related to construction materials and allowed students and faculty access to more modern equipment than currently available in the existing laboratories without having to purchase and maintain any new equipment.

In addition to the laboratory and teaching space, the gift funded release time for the faculty director of CETAC to actively engage in applied research, essentially the practice of engineering. This facet of CETAC is vitally important to the CET/CM program. Like all the engineering technology programs at WKU, the goal is to create graduates prepared to be engineering practitioners. A critical component of this type of curriculum is to place practicing engineers into the classroom. This gift provided the time and opportunity to actively involve faculty in their profession and incorporate those activities into the curriculum. The gift also provided funding for student employee time to work with the CETAC director on applied research. Once CETAC is established, grant funded projects should make the center self sustaining. None of this would have been available if not for the funding created by this industrial partnership.

4. Benefits to Scotty's Contracting

Being the largest paving contractor in western Kentucky, Scotty's has a significant need for asphalt technology, materials testing, and qualified technical support in their laboratory. The flip side of the industrial partnership coin is the transfer of technical expertise from WKU to Scotty's. Part of the faculty release time funded by the Scotty's gift is to devote time to Scotty's as a consultant to help on specific projects, perform asphalt related research, develop training seminars for employees, and provide any other opportunity to transfer knowledge from academia to industry that may not otherwise exist. Through CETAC, Scotty's was able to effectively add a part time professional engineer with advanced education and expertise to their staff for limited cost.

5. Summary

The industrial partnership between Scotty's Contracting and Western Kentucky University has provided a unique way to expand financial resources of the university while at the same time expand the technical capabilities of a well respected local company. Several very important goals of higher education were reached through CETAC:

1. Bridging the gap between academia and industry;
2. Providing students with hands on practical educational experiences;
3. Involving faculty in the practice of their field of teaching;
4. Development of a steady source of financial resources to expand the higher education experience for students; and
5. Creating an educational environment focused on preparing students to ‘hit the ground running’ upon graduation.
When asked to “show me the money”, Scottys Contracting did just that in such a way that both parties benefitted greatly. At the time of this writing, CETAC is less than 6 months old and has 12 locally funded applied research grants, has involved over 30 CET/CM students on actual construction projects, and has placed WKU at the forefront of bridging the gap between academia and industry. CETAC has established a permanent legacy and improved the educational environment in this region forever. With the proper organization and vision, this idea has succeeded for the betterment of the students, the university, and the industry for generations to come.

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Mr. Dettman is a registered Professional Engineer in the states of Kentucky and California. He received his undergraduate degree in Civil Engineering from Clemson University and his graduate degree in Geotechnical Engineering from Stanford University. He has taught at Western Kentucky University for 8 years and has been active in ASEE during that time. In addition, he is active in the engineering/construction community through his consulting activities. He has presented numerous papers both nationally and internationally on the topics of Geotechnical Engineering and Engineering Education. His expertise is in the areas of Geotechnical Engineering, Construction Management, and Concrete Materials.