

## **Collaboration in Delivering Engineering Technology at a Distance**

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### **Abstract**

The goal of Engineering Technology at a Distance is to deliver a learner-centered Bachelor of Science degree at a distance through the collaboration of a university, community colleges, and industry. This paper gives techniques for effective delivery of engineering technology with easy access from the community colleges and industry. This will enable both traditional and non-traditional students obtain a bachelor's degree in engineering technology.

Efforts by higher education to build bridges and establish partnerships with all sectors of the community are both challenging and exciting. Academic programs and services designed to establish those partnerships need to be carefully designed to fill the market place expectation. Establishing strategies based on program benefits and beneficiaries can be important to overall program acceptance and success.

### **Introduction**

Metropolitan Orlando, where the University of Central Florida (UCF) is located, is ranked as one of the top 10 fastest growing regions in the country. Although highly recognized for its tourist industry, *Plant Sites and Parks* magazine lists metropolitan Orlando as one of the top 50 areas for manufacturing. Other targeted high technology industries include laser and optics, simulation, and microelectronics.

UCF is a growing metropolitan university that delivers a comprehensive program of teaching, research, and service. The university has played a key role in stimulating and sustaining the region's economic and technological growth.

The Engineering Technology at a Distance program within the College of Engineering at UCF gives students an opportunity to complete upper level courses in engineering technology and obtain a Bachelor of Science at a distance. This program, which is offered with FEEDS (Florida Engineering Education Delivery System) support is a degree program designed for students who have completed either an Associate of Arts Degree, an Associate of Science Degree, or the equivalent. The engineering technology at-a-distance program is modeled by a twenty-year experience by the College of Engineering in FEEDS (Florida Engineering Education Delivery System). FEEDS is and continues to be a primarily tape only program offered by all Florida State University System engineering schools for working individuals seeking a Master's degree in engineering. Two key factors in the success of FEEDS are ease of access to the taped lectures by the students and the determination to complete the selected program of study by participating individuals (primarily practicing engineers).

Specifically charged with the responsibility of addressing a particular niche in the engineering technology continuum, the Engineering Technology Department is the only public institution in the state of Florida to offer only upper-level engineering technology degree programs. (One other state institution, Florida A&M, offers upper level engineering technology, but concentrates on a four year degree program.)

The Bachelor of Science degree in Engineering Technology (BSET), Operations concentration, is the initial program being offered at a distance and it provides an orientation for professional careers in technical management and operations in the manufacturing, sales, service and construction industries. Through the selection of the upper-level technical concentration, students can tailor their program, based on previous knowledge, to assist them in launching a career that best meets their needs and aspirations. Projects in cooperation with local industry, solving real-world problems, are required of all students in the BSET program.

Since the fall of 1990 Engineering Technology has offered courses utilizing the videotape lecture successfully demonstrated by the FEEDS system. Primarily using UCF campus and community college locations, this system allows for maximum viewing freedom of the course material via tape without geographic or work schedule constraints. Emerging communication technologies (electronic mail, web forums, and the World Wide Web) offer enhancements to the current educators' delivery system. Efforts by the Engineering Technology department are now underway to utilize these technologies and enhance the quality and effectiveness of the system.

The state has 26 community colleges offering the two-year technician degrees. The UCF Engineering Technology at a Distance program is forming articulation agreements with these schools that will enable the students to continue and receive a bachelor's degree in engineering technology while remaining in their community college location. For this to happen, adjustments need to be made both in lower and upper level courses and agreed to by both parties.

### **Constituency Profiles**

What differentiates the at-a-distance program from the FEEDS program described above? Furthermore, how do we profile and identify markets of opportunity for delivery of the at-a-distance program?

The inclusion of electronic mail, chat rooms, and web-based material serves to enhance and differentiate the engineering technology at-a-distance program from the FEEDS methodology.

The college and the Engineering Technology Department draw mainly from the FEEDS and regional campus technology program experiences to establish an engineering technology, at-a-distance, constituency profile. The profile helps identify specific target markets and includes the following:

- a non-traditional student,
- a person employed in the technology sector,
- a person or company with a need for a technology enhancement program,

- a need for an enhanced workforce pool to meet local/regional economic development aspiration,
- existing contact or entry with community colleges within the state.

### **Marketing Initiative**

Several constituency profile factors can be addressed with one marketing effect. In one instance, marketing efforts were simply matched with objectives of an interested organization. For example, many of the community colleges with engineering technology associate programs in the state seek to employ at-a-distance for their program graduates. Their interest led them to contact employers of their associate degree graduates to make them aware of the at-a-distance opportunity. These types of introduction give the program a favorable environment in which to market to employers.

Direct initiatives by the college and the Engineering Technology Department include:

- Placing advertisements in local and regional newspapers regarding the Engineering Technology at a Distance program with appropriate response information included.
- Meeting directly with employers who utilize both bachelor and associate degree engineering technology graduates to explain the program.
- Meeting directly with companies who are familiar with the college and have utilized UCF's engineering and engineering technology graduates.
- Meeting directly with local/regional professional societies to explain the program, its advantages and benefits to their specific group.

Without a question, all of the activities which are taken to market the new program are not revolutionary, to the contrary they are very ordinary. Yet, in the context of the traditional educational model, this model involves leaving the office and meeting potential program users (customers) fact-to-face. Having an idea of who those customers are and how to reach them can be very helpful tools in this process.

### **Conclusion**

As higher education goes beyond its traditional boundaries to create useful and meaningful partnerships with corporate, government and community agencies it must be prepared to market and create an awareness of its programs and service to these external constituencies.

Creating, packaging or reorienting educational programs for external, nontraditional consumers will take more than saying, "we have it, come sign up". It is necessary to be prepared to market these programs in terms of value to the customer beyond the education value. Defining a customer or constituents profile and developing marketing strategies to address the profile elements will go a long way to developing the partnership you seek with external consumers through your educational programs.

## **References**

1. Knowles, Malcolm; The Modern Practice of Adult Education, Cambridge Books, New York, 1980.
2. Blackwell, G.R., Herrick, R., Honchell, J., and Munoz, M. (1997). Industrial Advising Boards: A Real Resource. Proceedings 1997 ASEE College Industry Education Conference, Tampa, FL, January 1997.
3. Gentry, D.K. (1998). The Public's Expectations Versus Institutional Behavior. Proceedings 1998 ASEE College Industry Educators Conference, Savannah, GA, February 1998.

## **Biographical Information**

### LUCY C. MORSE

Dr. Lucy C. Morse is an Industrial Engineer serving as a professor in the Engineering Technology department of the University of Central Florida. In that capacity, she is the Director of Engineering Technology at a Distance, a program to deliver B.S.E.T degrees at a distance. She was the project manager and the principal investigator of the Central Florida Consortium of Higher Education Distance Learning Demonstration Project. Previously, she was the program manager in the engineering department of the National Science Foundation. Her major areas of interest and expertise are project management, quality management, economic analysis, and distance education.

### JACK SELTER

Jack Selter is the Director of External Resources for the University of Central Florida, College of Engineering. He handles the marketing, public relations and is the Technical Application Program (TAP) coordinator for the college.