

AN EDUCATIONAL/INDUSTRIAL PARTNERSHIP EXAMPLE FOR PROVIDING HIGHER EDUCATION

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Abstract

This paper discusses a developing and productive relationship between industry and academe. A major industrial employer in south Mississippi requested that a technical curriculum be taught at a branch campus of a regional state university. As university funds were unavailable to launch the desired program, a coalition of academe and industry was formed, which developed an industrial engineering technology (IET) program to meet the needs of this special situation. The program is designed to be delivered from two separate academic institutions in a seamless fashion. This paper provides an example of one possible approach to meet the specific needs of industry. It also outlines the issues leading to the alliance, the major participants, the basic configuration of the program, and the advantages of this type of organizational structure.

Background

Historically, the employer had an educational co-operative agreement in engineering with another state institution. Unfortunately, the program did not produce satisfactory results. Program graduates were technically qualified, but were reluctant to return to the departments from which they were selected. During the education process the students' personal goals had changed or had been influenced enough to alter their career objectives. While company officials chose these co-op students carefully from thousands of employees in the operations/manufacturing segment of the industry, they did not foresee the attitude change of the students. This situation resulted in frustrated management and limited program growth. Yet, canceling the program would deprive both the students and the industrial partner of the benefits such a program can provide.[1]

The candidate selection process proceeded as follows. All interested applicants were screened within their immediate home departments, and approximately the top ten candidates from each department were interviewed by a preliminary selection team. The initial application pool was comprised of approximately 120 employees. The applicant pool was narrowed down to 70 potential candidates (representing seven departments), and then refined to ten finalists. The qualifications of the ten finalists were reviewed by an executive selection committee, which individually interviewed and rated each applicant. Two co-op students were selected each year through this process.

During the selection process, management stressed the stipulation that the graduates return to their respective department, which was agreed to by all applicants. However, once these students graduated, a significant change in career objective was detected. They no longer wanted to "get their hands dirty." Instead, they preferred to work in an air-conditioned office in a business environment. In an attempt to achieve better results from the co-op program, the employer decided to approach the University of Southern Mississippi to provide an alternative educational experience for their employees.

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Major Participants

The alliance is comprised of two academic institutions and one industrial partner. The University of Southern Mississippi (USM) and the Mississippi Gulf Coast Community College (MGCCC) form the institutional academic foundation for the program. Together these institutions provide a seamless four year IET program, with the university awarding the Bachelor of Science Degree in Engineering Technology. USM is southern Mississippi's multi-campus regional university, with its main campus located in Hattiesburg. The University provides educational services for over 14,000 students annually. The IET program described in this paper is located at the Jackson County Campus of USM Gulf Coast in Gautier, Mississippi.

Mississippi Gulf Coast Community College is a multi-campus college serving the gulf coast of Mississippi, with headquarters in Perkinston. The College has three locations, one of which supports the IET program discussed herein, and is located in Gautier, Mississippi. USM leases space from MGCCC at this site for their Jackson County Campus operations to provide classes for local university students.

Ingalls Shipbuilding, a division of Litton Industries, is the industrial partner. Ingalls is one of six major shipyards currently operating in the United States. It fabricates the ARLEIGH BURKE class of destroyers, and the WASP class of amphibious assault vessels for the United States Navy. Other customers include the government of Venezuela and two oil related organizations. Ingalls has a letter of commitment from a cruise line to construct two ocean liners, each over 800 feet in length, with an option for 6 more. Ingalls employs approximately 11,500 workers, 8,000 of whom are in manufacturing.

Program Site Change

Several years ago an IET program was not available at the local branch campus of USM. Therefore, the co-op program initially was moved from the engineering school to USM's main campus. Several groups of students were enrolled in the new program. The initial results were promising, but due to the geographical distances (approximately 100 miles between the industrial site and the servicing institution), the students were separated from their families, which caused a disruption of their family life. The resulting change of location to the local branch campus represented a significant distance reduction, allowing the students to live at home and to interact regularly with their supervisory staff at the industrial site.

The costs associated with the main campus program were significant for the industrial partner, who bore all costs for the 8 students in the program. The industry representatives realized that if the program were available at the local campus, the living and travel expenses associated with the current program could be reallocated to provide funds for increasing the number of students enrolled in the program. All co-op students could then reside at home while earning their education. Using the monetary savings, Ingalls could thus provide an opportunity for a larger number of their employees to obtain further education.

Ingalls approached USM's administration about launching the program at the satellite campus. The director of the School of Engineering Technology assessed the feasibility of bringing the program to the local branch campus. Various levels of university administration met with company officials at the industrial facility for further discussions on local program feasibility.

One feasibility issue, which had the potential to block efforts to offer the program locally, was that the branch campus offered only upper level courses for local programs. The USM campus operates primarily in a two-plus-two arrangement with MGCCC. Therefore, MGCCC was asked to provide the first two years of the IET program. Concurrently, Ingalls was conducting financial studies based on different scenarios to analyze the potential cost of supporting the program, both with and without state aid. Negotiations were conducted between industrial representatives and university personnel to identify and solve problems associated with costs and logistics.

Although the final agreement among the academic institutions and their industrial partner resulted in the launch of the IET program at the Jackson County Campus in the 1998 fall semester, full integration of the program between the institutions has not been achieved. Ingalls agreed to guarantee 15 equivalent students per class for a

IET COURSE SCHEDULE
JACKSON COUNTY CAMPUS, USM

COURSE		FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	TOTAL	
		1998	1999	1999	1999	2000	2000	2000	2001	2001		
IET 300	MFG PROCESS W/LAB				X			X			2	
IET 302	IND QUALITY CONTROL	MON				X				X	3	
MET 410	PRODUCTION MATERIALS			X			X				2	
IET 310	CNC MACHINING W/ LAB				X			X			2	
IET 350	IND COST CONTROL			X				X			2	
IET 405	PROD INVENT CON SYSTEM	TUES				X			X		3	
IET 410	TIME AND MOTION W/LAB	THURS				X			X		3	
ENT 320	COMP AID DRAFT & DESIGN		WED					X			2	
ENT 390	ENGINEERING ECONOMICS				X				X		2	
PSY 360	STATS FOR BEHAV SCIENCE											
ENG 333	TECH WRITING											
IET 406	INDUST AUTOMATION		MON			X					2	
IET 407	INDUST SUPERVISION				X			X			2	
IET 409	PLANT LAYOUT					X					2	
IET 480	IND SIMULATION & MODELING								X		2	
ENT 330	APPLD THERMAL SCIENCE				X					X	2	
ENT 470	APPLIED ELECT W/ LAB		MW			X			X		3	
IET 450	PRODUCTION ANALYSIS				X			X			2	
IET 308	MAINTENANCE ENGINEERING						X		X		2	
ENT 340	STRENGTH OF MATERIALS				X			X			2	
ENT 430	SOLAR HEATING					X			X		2	
IET 400	SENIOR PROJECT		ARR	X	X	X	X	X	X	X	8	
											50	
TOTAL		4	5	3	8	8	3	8	8	3	0	50

three year period, in order to establish the program. They also agreed to allow the program coordinator, a regular adjunct faculty member and full time Ingalls employee, to oversee the program as part of his normal work assignments, and at no cost to the University.

Figure 1.

Program Structure

Unlike many academic/industrial partnerships, which often provide industry personnel with specific training programs leading to certificates,[2] the program described in this paper is designed to provide the student with a baccalaureate degree in IET. While the program is being offered by two separate and distinct institutions, it is designed to be seamless in approach. Therefore, students accepted into the program at the community college level also are accepted at the university level. The program is coordinated at the university level. The current curriculum is shown in Figure 1. Teams were formed at all levels to implement the program integration between the institutions. This included personnel from each institution's business office, financial aid, admissions, registrar, and administration. Each team works on the specific details associated with the scope of its operation for the program's integration. Therefore, when a student is accepted or registers at one institution they are accepted or registered at both, etc. A student can be advised at both institutions. The credit transfer process is thus eliminated, and the student works through the program as if at a single institution.

Current Status

The program is in its first semester of operation. Currently, 32 students are enrolled. Five courses are being offered in both the fall and the spring semesters. Projections place enrollment at 40 in the second year, and 60 by the third year of the project. During the 2nd and 3rd years eight classes per semester will be offered. USM has under-

taken a search to hire a second full time instructor for the fall semester of 1999. Ingalls has committed to a three-year term of participation with this program. Some of the students who transferred from the initial main campus program will be the first gulf coast program graduates, with their expected completion in the spring of 1999.

Current administrative issues facing the academic institutions are as follows: First, the registration process has been confusing, as separate records are kept at each institution. No provision has yet been made to allow interaction between the institutions' records offices for tracking student progress toward a degree. Second, the distribution of fees is still undetermined. Third, although the structuring of the program does not mandate that students complete the associate degree prior to participating in some upper level classes, provisions must be put in place to insure that lower level prerequisites are met for 3rd and 4th year classes.

Summary

An interesting program has been introduced as an example approach to providing local industry with access to higher education opportunities for their employees. This program results from an alliance between two academic institutions and an industrial partner. The industrial partner guarantees to meet minimum class size requirements for a three year period. The educational institutions provide a seamless two-plus-two program, which allows students to receive the degree of Bachelor of Science in Engineering Technology upon completion of its requirements.

References

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Name of the First Author

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