Meeting Industry's Changing IT Needs

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INTRODUCTION

Purdue University's School of Technology has long been a proponent of responding to the industry and business needs in order to enhance the social and economic development of the state.

One of the strong partnerships that has developed over the years is between the Purdue University location in Columbus, IN and Cummins Inc. a leading worldwide designer and manufacturer of diesel engines and related products for trucks and other equipment. Purdue University entered into a joint venture with Cummins Inc. in 1997 in an attempt to benefit Purdue, Cummins and the local community. The program named Advanced Information Technology Training Program (AITTP) started as a one-time effort that has evolved into a program offered twice a year since the initial offering in 1997.

The Advanced Information Technology Training Program (AITTP) is a program where Purdue University offers six credit courses and a project delivered in a compressed format for Cummins Inc. employees and individuals from the community. These courses have focused in the database area developing skills for application developers or database administrators by providing a strong foundation for new hires and retraining current employees. Students go through the program as a cohort group. Since its inception there have been over seventy graduates of the program. According to Cummins the normal IT attrition rate is estimated at 15%. For the AITTP graduates this rate is approximately 8%.

The AITTP has been used as a prototype by the CPT department as an external source of funds and a means to acquire new faculty.

SYSTEMS/BUSINESS ANALYST PROGRAM

Cummins Inc. approached Purdue University School of Technology in the summer of 2002 with a proposal to develop a program to educate/train Systems/Business Analyst. The program was initially based on the AITTP program that currently existed between Cummins Inc. and Purdue University School of Technology. However after many planning meetings it was determined that this program would be vastly different.

Program Development

Cummins Inc. Information Technology management, two Purdue University School of Technology CPT associate professors, an OLS associate professor, and the director of the Columbus location met to brainstorm the development of a Business Systems Analyst training program. Cummins Inc. shared with the group an "IT Functional Excellence Skills Matrix", a document that they use to determine the skills necessary for a specific IT Function and then to determine how to deliver this training to their employees, hence our involvement. The Purdue School of Technology Professors shared syllabi of what existing CPT courses and OLS courses could meet these skill needs.

After many brainstorming sessions and renditions of the material, it was determined that the following four skills were critical at this point in the Systems/Business Analysts training: Systems Analysis/Information Technology Awareness, Facilitation/Team Building, Basic Business Knowledge, and Communication. It was also determined that these courses would be non-credit, with pieces taken from existing courses.

Content, Format, and Delivery

The content of the Systems/Business Analyst Program would consist of the four following skills sets:
1. Systems Analysis/Information Technology Awareness
2. Facilitation/Team Building
3. Basic Business Knowledge
4. Communication Skills

The training will be completed in two weeks, 8:00 am - 5:00 pm, with approximately 20 participants in attendance. The material will be delivered by associate professors, an assistant professor and an adjunct faculty based on their area of expertise. The Systems/Business Analyst skills identified above will be dispersed through the entire two week period, with all of the professors present throughout, hence creating a team approach to training. The application based training will be delivered through mini lectures, exercises, and activities. Based on Cummins Inc.'s request for student assessment, case studies and exams will be included in the training.

Purdue University Issues

The Systems/Business Analyst program is completely different in format from its predecessor, the AITTP program. AITTP consisted of six Purdue University credit courses being taught by individual instructors in a six to eight day delivery time for each class. The Systems/Business Analyst program is non-credit material taught over two weeks by a team of five instructors. Administratively, this posed some new challenges in addition to the old challenges that had been addressed in the AITTP.

Pricing the Program

The first challenge was to price the program. The methodology used to price the Systems/Business Analyst Program would be different from the methodology used for the AITTP program. Some costs would be consistent with both programs such as administrative overhead costs and textbook fees. The format of the new program required reworking the pricing model that had been in place for several contracts with Cummins. The major issue affecting pricing was the non-credit content of the program. While all credit courses are offered through an academic department, like CPT, non-credit classes must be offered through the Purdue's Continuing Education Department. The development and delivery costs of the program involved considerably different pricing methods from those used for the AITTP program. For the AITTP program each course was priced to include normal tuition fees for students along with an estimate for each professor's salary. The salary was estimated as one-month's pay for the anticipated instructor (similar to Purdue's pay for an overload course or a course during summer school). With the new program the number of instruction hours was approximately the same as for a three credit hour class. For this reason we estimated faculty salary similar to the faculty salary for teaching a three credit hour class in Summer school.

Another issue was developing a method to recover the cost of course development. In the AITTP program the development costs were paid in advance. For subsequent offerings there was no development costs budgeted. For the new non-credit program Cummins did not want to pay development costs up front. Instead Cummins asked for quotes based on the number of offerings. This would allow the development costs to be absorbed over the number of sessions Cummins chose. This would also require adding a clause to the letter of agreement with Cummins. That clause specified that if Cummins decided not to offer all of the agreed upon sessions they would still need to pay the development costs. With five different instructors (three associate professors, one assistant professor and one adjunct) the development pricing was not as straightforward as in the past. For the AITTP program development cost was estimated at one month's salary development time for each course. Work-

ing with Continuing Education we estimated development time as a ratio to delivery time, or two hours development time for one hour delivery time. Purdue felt it was important to estimate development costs on the low side. This would allow us to stay competitive with an outside contractor that Cummins was also negotiating with to deliver a similar program. To simplify the model for development costs Continuing Education chose one instructor's salary to base this cost on.

Scheduling the Faculty and Facilities

The second challenge was scheduling of faculty and the location of the program. The goal with the program was to use a team approach with instructors available at any time. Since Cummins intended for at least one of the sessions to be offered during the regular semester, the OLS and CPT departments had to work together to plan the regular semester course offerings. This required assigning most of the faculty involved to evening instead of daytime classes in their regular program to avoid conflicts with the Cummins non-credit daytime classes.

Scheduling the facility was relatively easy since IUPUC is a commuter campus most facility scheduling problems arise for classes offered in the evening. A classroom with lab facilities was reserved for the spring semester between 8:00 am - 5:00 pm which was the anticipated program time.

Faculty Salaries

The third challenge was faculty salaries. Instead of one month's salary as was paid instructors for each class taught in the AITTP program a new method would have to be determined. With the help of Continuing Education it was decided the faculty salary estimate along with the development cost for each session would be divided among participating faculty based on their participation in the program. The percentage each faculty was lead instructor would be calculated and salaries would be based on that percentage of the overall allotment for faculty salaries. All faculty agreed to this method.

Effect on the Purdue Program in Columbus

The next step in program planning was to consider the impact (both positive and negative) of the Systems/Business Analyst Program on the mission and existing programs at Purdue University School of Technology in Columbus. It was immediately obvious that this program could provide many positives. Primarily, it could provide the opportunity to engage a Fortune 500 company and the leading employer in the community. We believe that faculty involvement in engagement and discovery activities are necessary to enhance faculty development and to help integrate the effective use of technology in business and industry. Secondly, the program could provide a renewed source of outside funding, for individual faculty members and for the CPT program as a whole. In lean times of reduced academic funding, this type of engagement program is ideal to augment departmental budgets.

However, early in the program planning stages, Purdue Columbus recognized that implementing a program of this type could result in facing more than one challenge. One challenge could be described as "faculty drain". Faculty teaching loads are strictly controlled by University regulations in an attempt to avoid overload situations. Any time-intensive engagement activity can potentially drain the faculty from their classrooms and teaching of the normal credit courses in their program. Classes that faculty members would normally have taught might have to be cancelled, or adjunct instructors would need to be hired to fill in for those faculty. That could put the quality of the credit programs at risk and impact student retention. We soon realized that removing three tenured professors from the normal classroom to deliver non-credit coursework could have a strong negative impact on a growing program.

FUTURE ISSUES TO ADDRESS

As planning for the Cummins/Purdue Columbus Systems/Business Analyst Training Program reached its final stages, a new challenge arose. Cummins Inc. is a global operation. Although headquartered in Columbus, Indiana, Cummins serves its customers through more than 500 company-owned and independent distributor locations in 131 countries and territories. These include large operations in Canada, Mexico, and Europe. Cummins had identified a need to take the Systems/Business Analyst Training Program to their other locations. Their past training model had been to bring international employees to the Columbus headquarters for training. Their new training model was moving toward making training programs portable enough to take them to all international locations. In the final stages of the program planning, Cummins worked with Purdue Columbus to devise a method to "train the trainer" and provide those trainers with the materials required for program portability to other locations.

As a final step, planners explored a Phase II program for Cummins IT employees. This program would consist of a subset of Cummins employees who had successfully completed the Systems/Business Analyst Training Program. Tied closely with this phase would be Cummins' effort to "standardize" the tools they would require all analysts to use for project documentation. Phase II would devote more time to the skills required to document project specifications for projects sent off-shore to be developed. It was predicted that Phase II would be delivered beginning in fall of 2003.

SUMMARY

The development of a Systems/Business Analyst Program offers Purdue University an opportunity to build on a strong partnership with a Fortune 500 company that can benefit both partners. To be successful it has been necessary for the university to be flexible in its approach. Format, content, pricing and resource issues for this program created unique problems and opportunities from its predecessor the AITTP program. At the time of this writing, Purdue is awaiting word from Cummins Inc. on whether they will proceed with the program.

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