



# Engaging Industry to Benefit Industry and Academia

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## ABSTRACT

Partnerships between universities and industry can often bring much needed rewards to both parties. This paper outlines the details of an attempt to take the lessons learned from a successful partnership between one company and Purdue University and extend that model into a statewide program that can benefit Purdue University, industry and local communities in the state of Indiana.

## INTRODUCTION

Purdue University entered into the Advanced Information Technology Training Program (AITTP) with Cummins Inc. in 1997. In this venture the company provided Purdue funding to: purchase a state-of-the-art computer lab, purchase software, pay for a faculty position for the Computer Technology Department, and develop a set of courses using the latest software. Purdue University in return provided: a cost effective training alternative, a nearby source for training information technology personnel, college credit toward a Purdue degree and college instructors to teach courses. What started as a one-time effort that has evolved into a program offered twice a year since its initial offering.

The AITTP is a program where Purdue University offers six credited courses and a project delivered in a compressed format for Cummins Inc. employees and individuals from the local community. These courses were focused on developing skills crucial for individuals wishing to become application developers or database administrators. Students go through the program as a cohort group. Each cohort group consists of new hires and current employees desiring retraining. Cummins is responsible for filling the seats in the program. Demand for entrance into the program is high and Cummins has strict entrance criteria that employees must meet before being allowed into a cohort's candidate pool. The courses making up the program are given sequentially, meeting Monday through Friday from 8:30 am to 5:00 pm, with each course being delivered over the course of one to one and a half weeks. Since its inception there has been over 70 graduates of the program.

Clearly the need for trained professionals is not just a need for Cummins. Many of the fastest growing occupations are computer related. Universities have not been able to keep up with this growing demand. Industry will need to come up with answers as their needs worsen.

Last year the Computer Technology Department (CPT) started to look into development of a program based on the highly successful AITTP program. Initially, this was rather informal review of the existing program and investigation over the course of two semesters. The results of the preliminary investigations were promising. A feasibility study was undertaken during the past summer. The rest of this paper reports on the progress that has occurred and where the program is headed in the future.

## ENGAGEMENT PROGRAM

The term Purdue University uses for business and industry collaboration is engagement. The School of Technology defines engagement as technology transfer and application, responding to business and industry needs, and enhancing social and economic development.

Although our program is based on AITTP model, it has several differences. The most significant is how the program is funded. The AITTP was completely funded by Cummins (including all startup costs). This program

would be supported by the selling of individual seats or groups of seats to the program. Financially this involves either getting the startup costs or building them into the early year of the program. Building the costs into the early years makes it difficult to keep the price of the program competitive. Marketing the program to industry is required – a task that many departments are not equipped to handle. The AITTP focused mainly on a database curriculum. The CPT department would like to expand these offerings to include the different tracks/specialties that are available within CPT baccalaureate degree: database, telecommunications and networking, application development and systems integration.

The format of the program would be similar to the AITTP program, which has Purdue faculty delivering credit courses in a condensed format to a cohort group over an eight to 12 week period. The program could be delivered at any of Purdue's locations which have sufficient resources available to support the courses taught – many of the courses have a hand-on component which requires specific hardware/software.

Based on the relationship we have developed with Cummins over the last five years, as a result of the AITTP program, the potential for new, significant, long-term relationships is promising. Instead of building isolated one-to-one relationships, we are looking to develop multiple relationships simultaneously.

## FRAMEWORK OF THE PROGRAM

Based on the experience with the AITTP initiative and brainstorming with CPT faculty, it was decided that we would offer specialized educational certificate programs that matched the areas of specialization that existed within the CPT baccalaureate program.

We evaluated condensed format programs for pricing and determined that our certificates would be competing with programs in the \$10,000 range. Our goal is to develop a program that will fall into that competitive price range. Initially, we looked at four, five and six as the potential number of classes to offer in each track. To get the depth in a concentration area and still stay close to the desired price point, the five-class format was selected.

Initial offerings would include the network and database certificate tracks. Demands for the skills these tracks represent are high. The database track has the added benefit of having several classes already formatted for condensed delivery – classes used in the AITTP program. The next phase would include the systems integration (systems analysis) track. The application development track would be implemented last based on the application development faculty's concerns of offering their classes in the condensed format.

The classes that each certificate track will include are shown in Table 1.

## ISSUES IDENTIFIED

With a basic format and content the program developed there were issues that were identified and need to be addressed to successfully implement the program. The issues that will need to be resolved and potential solutions and aids in resolving the issues in order to create a viable program:

A source of funding for the programs' startup costs must be found. The most expensive items are a set of laptops to be loaned to students and the cost to compress existing courses into the compressed format. Potential sources of startup funding include grants, or a set of founding organizations (companies) who, for an annual fee, would receive some benefit (i.e., reduced cost per student or right of first denial for seats in offered courses).

Table 1.

|                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Database<br>CPT 272 Database Fundamentals<br>CPT 372 Database Development<br>CPT 392 Database Design and Implementation<br>CPT 487 Database Administration<br>CPT 488 Data Warehousing                                                                                   | Network<br>CPT 176 Information Technology and Architecture<br>CPT 230 Data Communications<br>CPT 330 Local Area Networking and Systems Administration<br>CPT 343 Advanced Systems Administration<br>CPT 430 Wide Area Networking |
| Systems Integration<br>CPT 280 Systems Analysis and Design Methods<br>CPT 380 Requirements Discovery and Modeling<br>CPT 385 Advanced Design Techniques<br>CPT 480 Managing Information Technology Projects<br>TECH 581B Information Technology Quality and Productivity |                                                                                                                                                                                                                                  |

The CPT department and our school, the School of Technology, have little experience in the type of mass marketing that such a program requires.

The time commitment required of their employees to complete the coursework. In the AITTP program, the students spend up to 12 weeks dedicated entirely to learning. This proves to be quite a strain to the departments/organizations where the students came from. This is partially mitigated in this proposal since there are only five courses per certificate – however this is still an eight week commitment on both the students and company. Other alternatives include:

- Reducing the number of courses to four per certificate. While this reduces the time required by the students, there are other ramifications that require investigation (i.e., increased cost per student).
- Splitting the certificates into an introduction (two courses) and an advanced (three courses) certificate. The total time commitment is the same (eight weeks, but they are not necessarily contiguous).
- Adopting a weekend master’s-like approach with courses being held over weekends (versus during the work week).

Due to the laboratory equipment required for the Networking courses, offering this certificate at any location other than West Lafayette may be impossible. This is a limiting factor when trying to engage the entire state of Indiana.

**POTENTIAL BENEFITS OF PROGRAM**

In order for the program to be successful it must provide benefits to all parties involved. A program of this type would offer Purdue and specifically the CPT department the following opportunities:

- Develop funding source for CPT department for:
  - faculty
  - faculty development
  - labs
  - software
- Utilize labs and classrooms at times when they are typically under-utilized
- To engage different companies in state of Indiana that can result in:
  - Additional partnerships between Purdue and industry
  - Grants and gifts for department and university
  - Aid in student placement for jobs and internships

Benefits for industry include:

- Cost effective training alternative
- By utilizing Purdue’s main and statewide campuses a nearby source of training
- Potential of college credit
- Classes taught by college instructors
- Building a relationship with the university that can be used for recruitment of employees

**STATUS OF PROGRAM**

The program has been merged with several other initiatives as part of a Course Modules Task Force. This task force seeks to fulfill the educational needs of industry. Not only does it include the certificate programs mentioned here, but also individual courses, course modules (parts of existing classes) and workshops. With the creation of the task force, the momentum of this initiative has been stymied. The current goal is to have a program in place in the next year.

**SUMMARY**

With the current economic climate, many universities face unreliable funding, any possibilities for additional income are enticing. However, that same economic climate presents difficulties with securing the initial start-up funding from within the university or with industry.

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