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The Center for Professional Studies in Technology

A new College of Technology Center at Purdue University has been created to provide graduate level degrees, certificates, courses, and workshops to professionals in industry at the local, state, regional, and national levels. The center is an outgrowth of the very successful Weekend Masters Program started approximately 10-years ago by the College of Technology. The courses can be delivered on campus, by distance, on site, or a combination. Courses are taught by full-time tenure track faculty, clinical faculty and adjuncts hired through the Center. An administrative structure has been created to manage all professional education efforts in the College. This structure is within the Center for Professional Studies and is under the administrative authority of the Associate Dean for Graduate Programs and Research in the College of Technology. Currently there are programs of study being delivered on campus, on site at a major manufacturing facility in Indianapolis, IN, and in the community of Columbus, IN. Plans are underway to offer additional programs on site, at other locations in Indiana, Ohio and in Washington, DC.

Professional Education for Engineers and Technologists - The New Challenge

If the US is to remain preeminent in creating new innovative technologies through engineering to enhance its economic prosperity, quality of life and national defense, the US system of engineering and technology graduate education must remain the world's leader. New models for professionally oriented graduate education must be created and implemented that better support the lifelong development needs of the graduate engineering and technology workforce in industry.[1]

America's graduate engineering and technology talent in industry has become the nation's most underdeveloped resource for innovation and substantial additions need to be made in US engineering and technology graduate education to better meet the graduate needs of this national resource. As the Committee on Science, Engineering, and Public Policy (COSEPUP) has pointed out: graduate education in engineering has evolved primarily in the United States as a byproduct of a national science policy for research.[2] The United States does not have a definite coherent policy for the graduate development of the vast majority of its domestic graduate engineering and technologist workforce whose professional careers are centered on the creation, development and leadership of new and improved technology for business and industry.[3]

A Call-for-Action to Secure U.S. Innovative Capacity and Capability

By the year 2010, estimates indicate that 37% of America's domestic engineering leadership base will have retired, causing a "brain drain" and a loss in US innovative capacity because our future leaders in industry and government service are not being trained adequately to achieve engineering and technology leadership positions. US graduate engineers and technologists in the domestic engineering workforce must be provided the opportunity for a new type of professionally oriented graduate education throughout their professional careers.[4]

For America to compete, it must rebuild its innovative capacity for systematic technology development as a core competence in industry. Today, the vast majority of engineering innovations are needs-driven and market-focused This requires purposeful engineering and

technology creativity, engineering problem solving, and responsible leadership. Actions are required to develop innovation-based, professionally oriented, graduate education programs, as a complement to research-based graduate education, which better supports the further graduate development needs of America's domestic engineering and technology workforce in industry. This is critical for leadership of technology development and innovation for competitive advantage. In order to ensure world-class competitiveness, the US must take action to more fully develop the technical, creative, and innovative leadership capacity of the US domestic engineering workforce at the graduate level if it is to effectively compete in the new innovation-driven economy.

Meeting the Challenge for Change – Creating a Center for Professional Education for Business and Industry

The Center for Professional Studies in Technology and Applied Research (ProSTAR) is an effort by the College of Technology to better coordinate and expand the need to provide additional professional study opportunities to business and industry. The Center is based on the success of the Weekend Masters Program as well as the on-site delivery of a MS Degree at Rolls Royce in Indianapolis. We are also seeing an increased demand to offer and deliver more courses, certificates, and graduate degree programs to a wide range of business, industry and their employees.

The applied research aspect of the center relates to the interest by business and industry to engage in pure applied research projects with universities to solve immediate problems or improve processes. The relationship created with business and industry through a professional program provides opportunities for funded research projects. If the professional program offered is a MS degree program, student theses and directed projects can become pure applied research projects for the company.

Our goals are to create a Center for Professional Studies in Technology that is supported by business and industry as well as state and federal grants. This Center will coordinate and expand the already significant efforts by the College of Technology to deliver graduate professional education to practicing professionals. It is anticipated that the Center will be supported by industry partners through yearly fees and by fees from students enrolled in the courses and workshops.

This is a bold initiative and an exciting new advancement in partnering professionally oriented graduate technology education with the practicing profession in American industry that will stimulate technological innovation as well as state and regional economic growth. Without continuous technological advancements through creative technology practice in industry across the nation, no amount of achievement in fundamental scientific progress can assure our economic prosperity and national security in the modern world. The Center for Professional Studies in Technology is an effort to meet the challenges faced by business and industry by offering a high quality graduate program and coursework for practicing professionals.

The Center is focused on the working professionals who want an advanced degree or courses in technology without a career interruption. Students will come from many business and industries and many educational backgrounds but primarily those with a strong technical background and

experiences. Students include individuals with functional responsibilities who want to broaden their management capabilities, individuals with technical backgrounds who want to move into more management oriented positions, and individuals who want a deeper understanding of technology in their respective business and industry. Although the initial focus of the Center will be on advanced degrees, it will also offer certificates and courses for those not seeking a degree. In addition, the Center could serve as the primary means of delivering courses, certificates, workshops, and seminars to K-12 teachers in the STEM disciplines. For this effort we anticipate working closely with the leadership of the STEM Education Signature Area in the College as well as the Discovery Learning Center.

Description of the Center

The Center for Professional Studies in Technology will become a national leader and model program in the delivery of degrees, courses, workshops, and certificates to professionals in business and industry in the technical disciplines. The Center will be the coordinating and administrative structure within the College of Technology for most professional education initiatives. The Center will offer courses and certificates independently or through the existing departments in the College. Professional degree programs will be offered through the departments in the College in West Lafayette and Statewide Locations but coordinated and administered through the Center. All courses and degree programs will remain within the respective academic departments so course proposals and all curriculum related topics will remain the purview of the departments.

Management Plan

Center Director

The Center will be led by a full-time Director who has a strong background in business and industry and may not have to hold a faculty position in the College of Technology.
This position will provide leadership to the development and implementation of a Center for Professional Studies within the College of Technology. This includes managing the non-academic responsibilities for existing programs within the college including the Weekend and Rolls-Royce Master's Degree programs and the development, marketing and implementation of new programs with all departments, as needed. The Director would report directly to the Dean's Office and the Center will be a College of Technology Center. Responsibilities include:

- Develop and implement an organization which is self-sustaining
- Negotiate the tasks that can most effectively be managed by Continuing Education & Conference Division (CEC).
- Work with departments to identify and implement new programs which are self-sustaining and generate residual revenue for the departments and the center. Both organizations should have budget funding that provides incentive to support the programs.
- Develop and implement cost effective Marketing and Advertising for all programs.
- Ensure that appropriate distance technologies are available and employed effectively.
- Work with departments and administration to develop a list of current and proposed "core strengths" which can be the focus of degree programs, certificate programs and short course/seminars.
- Identify and solicit funding for the center in addition to program revenue
- Develop a list key metrics of success for the center

Project Program Managers
A Program Manager who leads and manages large professional programs will also be part of the initial staff and will report to the Director of the Center. Program Managers will be added to the Center as warranted when a cluster of courses or a degree program is initiated. Program Managers will be funded by the tuition of the students and will be responsible for the overall management of the program and courses and will teach when appropriate. Program Managers will have industrial and subject matter experience related to the courses and degree program they are hired to support.

Clinical and Adjunct Faculty
The Center will hire part-time adjunct faculty to teach the professional courses. The Center will also hire full-time Clinical Faculty as the program grows and funding increases through income generated from the courses offered and through grants. Clinical and Adjunct Faculty will report to the Center Director.

Full Time Tenure Track Faculty
The Center may hire full-time tenure track faculty in the departments to teach courses through the Center as the need arises for Center degree programs that are in high demand. However, one of the goals for the Center is to increase the offerings of professional technical education courses through the College without a heavy dependence on department faculty. One of the primary goals for the Center is to deliver professional education courses without it having a negative impact on the departments in the College whose primary mission is to deliver degree programs to traditional students and engage in research as well as other scholarly activities. [5]

Course Delivery
Courses and degree programs will be delivered on the West Lafayette campus in a traditional manner, by distance, through a blended learning model using distance delivery and traditional face-to-face delivery, on site at a company, or on site at a Statewide Technology location. The goal is to make learning as convenient as possible and to make classroom technology as transparent as possible. The degree programs can use the cohort model of delivery to insure a high quality learning experience to working professionals who face significant career obligations. [6]

Most courses, certificate programs, and degree programs will be department-based with ultimate responsibility for course content belonging to the full-time faculty. The courses will be delivered by full-time faculty as part of their regular teaching load or through overload. Courses can also be delivered by part-time adjunct faculty hired by the Center or by the full-time Clinical Faculty hired by the Center. The Center staff will occasionally take the lead in developing workshops and seminars that can be independent of the academic departments as the need arises. These workshops and seminars must meet the approval of the Dean of the College of Technology and reviewed by the academic programs when appropriate.

Initial Budget
The Center budget will be administered through the Dean's Office but all of the expenses and operational costs of the Center will be generated through tuition paid by the students and fees from industry partners. Budgets for each course and program will be carefully developed to ensure that all expenses are covered to deliver the course, workshop, seminar, or degree as well as an overhead charge to cover the permanent staff and expenses. Income generated from student tuition collected through Continuing Education will be transferred to the Center's budget to pay expenses and cover salaries of the staff and instructors.

There is still much to learn with the budget management but there appears to be significant growth opportunities that will provide much needed residual income for the College of Technology and for the University.

Advisory Boards
The Center will have an internal and an external advisory board. The internal advisory board will include one faculty representative from each department in the College, a department head, a Director of a Statewide Location, the Associate Dean for Statewide Technology, and the Associate Dean for Graduate Programs and Research. The internal advisory board will serve as an advisory body for the Director to review policy, tuition, budgets, curriculum, and other operational and strategic matters and will meet monthly throughout the academic year. The external advisory board will include representatives from business and industry who have donated money or have a significant professional education program with the Center, alumni from the program, and a current student. The external advisory board will meet twice a year and provide counsel to the Center Director on matters related to the effectiveness of the Center to deliver courses, certificates, and degree programs. The internal and external advisory boards will be chaired by the Center Director.

Statewide Technology's Role
The College of Technology recognizes the great opportunity for professional technology education at the Statewide Locations. Our goal is to have satellite professional technology education sites at each Statewide Location to deliver courses, certificates, seminars, workshops, and degree programs to local business and industry. Statewide Faculty could teach many of the courses and, as demand increases, more faculty could be hired which would support the statewide program growth and also separate, in a more distinct manner, the role of Statewide Technology from IVY Tech programs. By offering these professional programs, a closer working relationship will be created with local business and industry and an increased positive impact on the economy. Income generated from tuition for the professional technology education offerings could supplement the statewide budget which could be invested in the traditional programs and facilities. Each Statewide Director would have an additional role as the location director for professional technology education and serve as the liaison to the Center located in West Lafayette.

STEM Education
STEM Education is one of six Signature Areas in the College of Technology. Purdue University's College of Technology is uniquely positioned to deliver instruction, develop and assess curriculum materials, and prepare educators for the "T" technology in STEM education.

The College of Technology is a large and diverse unit at Purdue University with 8 departments focused on the computing technology, engineering technology, industrial technology, teacher education, and STEM learning. More than 200 faculty and 300 graduate students engage in pure applied research in the technology and are active in teaching and developing innovative curricula and courses in STEM. This important initiative will include teacher training and the Center for Professional Studies in Technology can play an important role. The Center can assist the STEM Education signature area by coordinating and administering the delivery of courses, certificates, workshops, seminars, and degree programs to teachers of technology in local school districts through distance or on-site.

Other Sources of Funding

The Center will generate most of its operations budget from the fees paid by students enrolled in its programs. However, it is anticipated that other sources of funds will be generated for the Center through grants, special projects, industry partners, State of Indiana, and internal sources. The NSF is beginning to fund projects related to professional education especially in the STEM disciplines. This is an opportunity for the Center to partner with academic programs in the College to fund STEM-related courses and workshops. The State of Indiana may also be a source of funding for workforce development and the Center can become a leader in the development and delivery of courses in West Lafayette and the Statewide Locations.

Industrial Partners Program

The Center will also pursue industry sponsorship in the form of yearly donations by those industries that want to partner with Purdue in professional education. Industry partners will have special privileges and access to the Center's resources and staff. It is anticipated that the Center will be supported by industry through yearly fees. Rolls Royce Corporation, Cummins Inc., and The Boeing Company will be asked to become founding Industrial Partners. The Industrial Partners program will be developed by Center Director and initial contact with the companies made by the end of 2009.

Other Opportunities

After a period of time, it is anticipated that the Center can further expand its role beyond the initial focus on professional technology education for business and industry. There are opportunities to expand into the delivery of PhD programs to prepare graduates for careers in business and industry as well as for academia. This could be accomplished by offering a Weekend Doctoral program modeled after the very successful Weekend Master's Degree Program. There may be opportunities to partner with other colleges and universities in the State of Indiana to blanket the whole state with a network that would provide professional advanced degrees, certificates, and courses for anyone in the State that would be close to their home or place of work.

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