

2006-679: CREATING AN INNOVATION CONTINUUM IN THE ENGINEERING CURRICULUM: EPICS AND THE EPICS ENTREPRENEURSHIP INITIATIVE

Edward Coyle, Purdue University

Edward J. Coyle received his BSEE degree from the University of Delaware in 1978, and Master's and Ph.D. degrees in Electrical Engineering and Computer Science from Princeton University in 1980 and 1982. Since 1982, he has been with Purdue University, where he is currently Professor of Electrical and Computer Engineering, Co-Director of the Center for Wireless Systems and Applications (CWSA), and Director of the EPICS Entrepreneurship Initiative (EEI). From 2000 through 2004 he served Purdue as Assistant Vice Provost for Research in Computing and Communications.

His research interests include the performance analysis of computer and sensor networks, signal and image processing, and engineering education. He was a co-recipient of both the Myril B. Reed Best Paper Award from the 32nd Midwest Symposium on Circuits and Systems and the 1986 Best Paper Award for Authors under 30 from the Signal Processing Society of the IEEE. He has served as an associate editor of the IEEE Transactions on Circuits and Systems and was an elected member of the Board of Governors of the IEEE Circuits and Systems Society. He was the general chair of the 1997 IEEE/EURASIP Workshop on Nonlinear Signal and Image Processing. Dr. Coyle is a Fellow of the IEEE and in 1998 was named an Outstanding Engineering Alumnus of the University of Delaware.

Dr. Coyle was a co-founder, with Professors Leah Jamieson and Hank Dietz, of the Engineering Projects in Community Service (EPICS) Program at Purdue. He was also a co-founder and co-director, with Professors Leah Jamieson and Bill Oakes, of the National EPICS Program, which supports and coordinates EPICS sites at Purdue and 14 other universities. Further information about EPICS is available at <http://epics.ecn.purdue.edu/>.

For their work with the EPICS Program, Professors Coyle and Jamieson have jointly received the School of Electrical and Computer Engineering's 1997 Ruth and Joel Spira Outstanding Teacher Award, Purdue's Class of 1922 Award for Outstanding Innovation in Helping Students Learn, and the 1997 Chester F. Carlson Award for Innovation in Engineering Education from the American Society for Engineering Education (ASEE). The EPICS Program has been honored with several awards, including the Corporate and Foundation Alliance Award and, from the State of Indiana, the Inaugural Governor's Award for Outstanding Volunteerism. With Professors Jamieson and Oakes, Coyle was a co-recipient of the National Academy of Engineering's 2005 Bernard M. Gordon Prize for Innovation in Engineering and Technology Education.

Dr. Coyle is the founder and director of the Center for Technology Roadmapping at Purdue University. This Center was created in the Fall of 2001 to foster research and education in the areas of technology roadmapping and technology management. The center supports a website, <http://roadmap.itap.purdue.edu/>, that provides services for the collaborative development and public posting of technology roadmaps.

Joy Krueger, Purdue University

Joy Garton Krueger serves as Visiting Assistant Professor within the Purdue University College of Engineering, Department of Engineering Projects in Community Services (EPICS). Initially prepared at the undergraduate level as a science and mathematics educator in 1981, Dr. Krueger expanded her professional interests in educational and organizational assessment and evaluation, instructional research and development, and adult learning by obtaining Master's and Ph.D. degrees from Purdue's College of Education in 1987 and 1991.

Since 1990, Dr. Krueger has held leadership roles as Purdue University Registrar, Senior Policy Analyst, and Assistant Dean in the College of Education. These positions enabled Krueger to

serve the university and college during critical times of major organizational change resulting in improved student data systems, relevant academic policies, outcomes based curricula, effective programmatic assessment and evaluation strategies, and national and state accreditation. Additionally, Dr. Krueger has owned three companies and currently guides other professionals pursuing entrepreneurship endeavors in both the private and public sectors via her current endeavor Pathways to Performance, Inc.

Dr. Krueger's research interests include educational and organizational assessment and evaluation, teaching and learning engineering within P/K-16 and its application to the college curricula and academic performance standards as a means for developing quality diverse engineers and entrepreneurs; and the role of multidisciplinary faculty within engineering education.

Nancy Clement, Purdue University

Nancy Clement received her Bachelor of Science degree from Purdue University's School of Technology in 1989. Master's degree, anticipated December 2005, from the College of Technology with an emphasis on Social Entrepreneurship. Her research interest includes social entrepreneurship programs in academia, entrepreneurship opportunities for women and minorities, and social and organization change through leadership and entrepreneurship.

Nancy has been the Entrepreneurship Program Coordinator since April 2004 focusing on the EPICS Entrepreneurship Initiative and the Innovation Realization Lab. She has been with the university since 1996 in business services with the Minority Engineering Program, Women in Engineering Program, and the libraries. Prior to her university career, Nancy owned several businesses including a wholesale/retail business, rental property business, and a direct marketing business. As an independent contractor she has worked for the Department of Education, the US Census Bureau, and was a teacher for a private mental health institution.

From 1990-93, as a member of the American Society for Quality, Nancy introduced Koalaty Kid to the Lafayette School Corporation. "ASQ Koalaty Kid trained schools see results using quality processes". For more information please visit the Koalaty Kid website at <http://www.asq.org/edu/kkid/whatis.html> She has volunteered at several local organization including the Lafayette Adult Resource Academy and the Hanna Center.

Creating an *Innovation Continuum* in the Engineering Curriculum: EPICS and the EPICS Entrepreneurship Initiative

1. Introduction

Engineering Projects in Community Service – EPICS – is an engineering design program that operates in a service-learning context^{1,2}. EPICS students earn academic credit for their participation in design teams that solve technology-based problems for not-for-profit organizations in the local community. The teams are: multidisciplinary – drawing students from across engineering and around the university; vertically-integrated – maintaining a mix of freshmen through seniors each semester; and long-term – each student participates in a project for up to seven semesters. The continuity, technical depth, and disciplinary breadth of these teams enable them to deliver products of significant benefit to the community.

Many of these products have significant commercial potential. They thus provide a compelling context for the EPICS teams that developed them to learn about entrepreneurship and commercialization. The EPICS Entrepreneurship Initiative³ (EEI) provides this learning opportunity. Its goals are to:

- Create opportunities for EPICS students to learn about and experience entrepreneurship.
- Enable EPICS teams and their project partners in the community to identify, protect, and benefit from the intellectual property they create together.
- Spread the benefits of EPICS products to all communities.
- Develop a model of entrepreneurship that can be emulated by other institutions.

These goals, when combined with those of the EPICS program, imply that EPICS supports an *Innovation Continuum*: an EPICS team works with its project partner in the community to define, design, develop, test, deploy, and potentially commercialize products that are of significant benefit to the community.

In the following sections of this paper, we provide details of the programs and facilities that have been created to support the potential commercialization of EPICS-developed products. In Section 2, we describe the EEI's relationship with EPICS and the resources that have been developed to support the EEI. In Section 3, we describe in detail the EPICS Idea-to-Product[®] (I2P[®]) Competition. It provides a unique, highly mentored experience for EPICS students that wish to determine the commercial potential of their product.

2. The EPICS Entrepreneurship Initiative and its Relationship with the EPICS Program

The EEI supports the entrepreneurship-related aspects of the Innovation Continuum within EPICS by:

- Providing EPICS students and advisors with educational opportunities in the areas of intellectual property, patents and copyrights, and tools and techniques for searching patent and market databases. These opportunities include: (a) lectures by legal experts on various aspects of intellectual property, from patents to the many options for copyrighting software; (b) hands-on skills session in searching patent databases to determine other intellectual

property related to an EPICS team's product and the novelty of their own product; and (c) mentoring of teams by members of a local law firm, Bose Mckinney and Evans LLP, that has partnered with the EEI.

- Enabling student teams to develop commercial-grade prototypes by providing laboratory facilities in the Burton D. Morgan Center for Entrepreneurship. These facilities, which are approximately 1800 ft² in size, first support teams interested in entrepreneurship by providing the same engineering resources available in other EPICS prototyping facilities. They go beyond this basic capability because they are located in a building, in which they are surrounded by other programs, students, and faculty interested in entrepreneurship. This creates many opportunities for both informal and formal education and mentoring in many aspects of entrepreneurship.
- Establishing EPICS-specific policies with Purdue's Office of Technology Commercialization regarding intellectual property, royalties, and spin-offs resulting from EPICS commercialization activities. A copy of this ground-breaking agreement is included as an appendix to this paper.
- Creating the National EPICS Idea-to-Product[®] (I2P[®]) Competition. In this product feasibility competition, EPICS and other entrepreneurship teams with socially-beneficial products are judged on the basis of the need their product addresses, the functionality of their prototype, the intellectual property position of the underlying innovation, and the initial market opportunity. This competition is described in more detail in the next section.

EPICS teams that elect to participate in the EEI, and specifically in the EPICS I2P[®] Competition, are required to have the permission of both their faculty advisor(s) and their project partner in the community. This is necessary to ensure that the participation in the program is appropriate and advances the goals of the project partner, not just those of the EPICS students that wish to pursue a commercialization opportunity.

No additional academic credit is awarded to the members of EPICS teams that participate in entrepreneurship activities. This activity is considered to be within the scope of the EPICS program and to have engineering content because the focus is on product development for a market. Furthermore, the product being evaluated for commercialization must be one that was developed for or is closely related to one developed for an EPICS project partner. The focus of the EEI is thus not on the traditional business or financial plan development – it is product-focused and engineering-focused and is thus well within the scope of engineering students' developing expertise.

The Laboratory Facilities for the EPICS Entrepreneurship Initiative consist of two rooms. One is the Software Development Laboratory, which provides servers and desktop machines for EPICS teams with EPICS I2P[®] entries that are software intensive, client-server systems. It also contains a Digital Publishing Center that includes the latest in high-color, color printers in for formats ranging from 8.5x11 through 50" wide plotters. The second is the Hardware Prototyping Facility, which provides a wide variety of electronic test equipment, a paint/glue booth that exhausts to the outside of the building, lab benches, tools, etc. for teams that are building projects. The layout of these facilities in the Burton D. Morgan building can be seen in Figure 1.

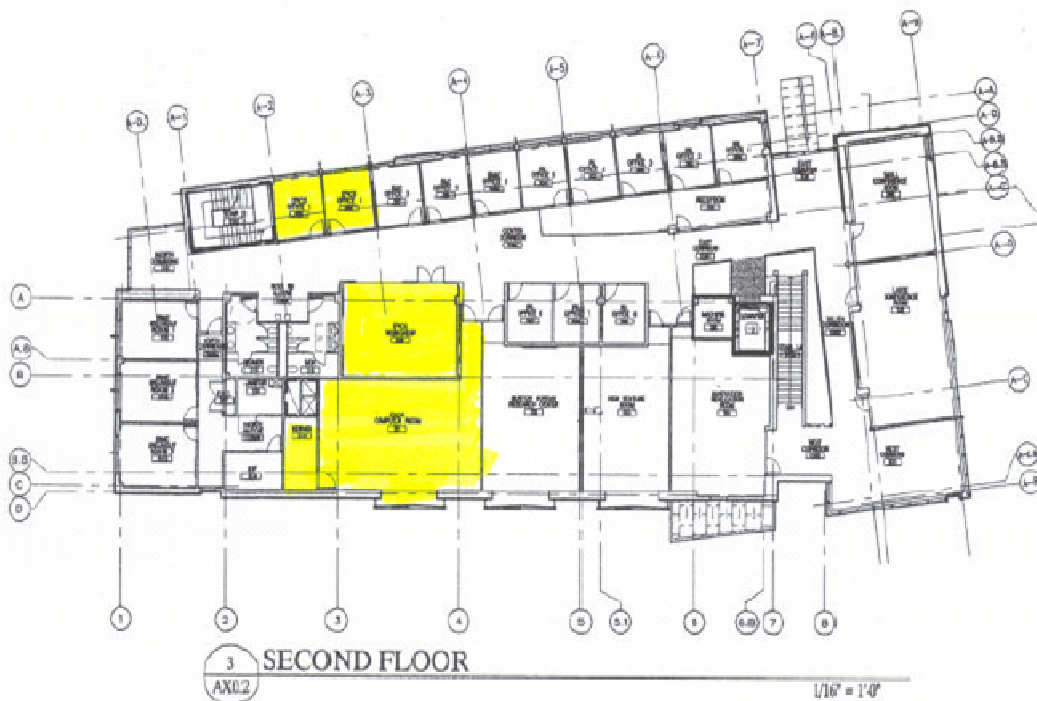


Figure 1: The facilities (shaded/yellow) for the EPICS Entrepreneurship program in the Burton Morgan Building include two labs – the Software Development Lab and Prototyping Lab – and two offices – for the Director and Coordinator of the EEI program. The other entrepreneurship programs sharing this building include the Innovation Realization Lab, the Technology Transfer Initiative, the New Ventures Laboratory, the Burton D. Morgan Entrepreneurial Competition, and the offices for the Undergraduate Certificate in Entrepreneurship and Innovation.

3. The EPICS Idea-to-Product[®] (I2P[®]) Competition

The EPICS Idea-to-Product[®] Competition is a product feasibility competition that is modeled after the Idea-to-Product[®] competitions created by Professors Steve Nichols and John Doggett of the University of Texas at Austin⁴. It is thus a product feasibility competition in which the student teams make fifteen minute presentations to a panel of judges. The presentations in the EPICS I2P[®] Competitions must address the following topics:

- An overview of the product being proposed, including a description of the underlying technology and a report on the status of any prototype under development. A demonstration of a working prototype is often a key elements in a winning entry in the competition.
- The *pain* the product addresses, which, in the context of EPICS, is typically the social need addressed by the product.
- The uniqueness of the product or service that is being proposed. This is typically addressed by searches for any similar products that might be available and should include a patent search to determine the degree to which the intellectual property the students and the project partner have created can be protected.

- The nature and level of innovation involved in creating the product or service. This enables the judges to determine if the new product being proposed is a new combination of existing technologies/products, involves the creation of new technologies or capabilities, or a combination of these.
- An initial market study to verify that a sufficiently large market for the product exists to be able to sustain a start-up company. Each EPICS team already has one customer – their project partner – that requested the product they developed. Similar organizations in other communities might thus be interested in the product as well. In many cases, though, a substantially larger potential market can be identified when enhancements to the product are considered.
- What are the competitive advantages of this product relative to others that might be similar or might address a similar need?
- Is there a clear window of opportunity and is the product well-positioned to take advantage of this opportunity.

The first two EPICS I2P[®] Competitions were held at Purdue in Spring 2004 and Spring 2005 and involved EPICS teams from three EPICS sites within the state of Indiana. They provided an opportunity to refine the competition, primarily by tuning the general criteria for an I2P[®] Competition to the needs and nature of the EPICS Program. The resulting competitions were very successful, resulting in the first spin-off company created by EPICS students, patent applications for at least one EPICS product, and subsequent entries in full business plan competitions by winning EPICS I2P[®] teams. Details of these successes are provided in the next section of this paper.

The success of the EPICS I2P[®] at the local scale has led us to broaden it to include all EPICS sites that participate in the National EPICS Program. There are currently 16 EPICS sites participating in this national program, 15 in the U.S. and 1 in New Zealand⁵. All have been invited to participate in the next offering of the competition, which will be April 1, 2006.

To disseminate the EEI[®] approach to including entrepreneurship within the EPICS umbrella, we have also decided to take the competition “on the road.” Over the next few years, it will be held at a succession of EPICS sites. Sites interested in hosting the competition are solicited during the annual National EPICS Conference. The site selected for this year’s competition on April 1 is the EPICS program at San Jose State University. This will take the EPICS I2P[®] into the heart of Silicon Valley to help enhance the visibility of the effort amongst practicing entrepreneurs, venture capitalists, and universities in the Bay area. Nine EPICS teams from EPICS sites around the country – including Penn State, IIT, Purdue, UC San Diego, San Jose State, Butler University, and Bedford North Lawrence High School – have entered the competition. There will also be a social entrepreneurship showcase that will feature teams from MIT, the University of Kentucky, and UC Berkeley.

Another important element of the EPICS I2P[®] is the prize money that is available for the top three teams selected by the judges. First place is an award of \$15,000; second place is \$10,000; and third place is \$5000. The first place amount of \$15,000 was selected because that would provide the EPICS team with the most promising product with the financial resources required to patent their product if that was needed to protect their intellectual property. The second and third

place prize amounts were considered sufficient for teams that win them to further invest in their promising product or idea.

The advice given to teams that win prizes in the I2P[®] Competition is that they “look forward” with regard to their project and product when they develop plans to spend their prize money. They are required to develop a spending plan that is approved by their faculty advisor(s) and project partner(s). Typical uses of prize money to date include: provisional patent applications, full patent applications, creation of a start-up company, support for a team’s project partner, dinner for the whole team, awards for individual students and/or the whole team, and equipment purchases.

A Purdue EPICS team that wins the Purdue EPICS I2P[®] has an additional opportunity to further develop plans for the commercialization of their product. The team is automatically advanced to the second round of the Burton D. Morgan Entrepreneurship Competition at Purdue. This Purdue-only competition is a business plan competition. The EPICS team that enters is typically matched with mentors or MBA students with significant experience in developing business plans. The end result is a working prototype of a product, a well-understood initial market for that product, and a business plan for succeeding in that market. The LARA EPICS team that won the 2005 EPICS I2P[®] (product-feasibility plan) Competition entered the 2006 Burton Morgan (business plan) Competition and finished third amongst the 17 teams in the undergraduate division of the competition.

4. Outcomes of the EPICS Entrepreneurship Initiative

Our initial evaluation of the effectiveness of the EPICS Entrepreneurship Initiative is focused on the quality of the products and entrepreneurship proposals generated by EPICS teams. To this end we provide a brief summary of the activities of several teams that won prizes in the first two EPICS Idea-to-Product[®] Competitions.

The First-Place Team from the 2004 EPICS I2P[®] Competition

TEAM NAME: The Judicial Data Base Systems (JDS) EPICS Team

TEAM GOAL: Design, develop, support, and maintain extensible database software for the Tippecanoe County Probation Department (TCPD).

TEAM WEBSITE: <http://epics.ecn.purdue.edu/jds/>

In Spring 2002, the JDS team delivered their first redesign of the TCPD’s client database. They replaced an Access-based database with a MS-SQL database and created additional functionality, and a custom graphical user interface. The additional functionality included a multimedia capability that enables client photos to be integrated into their on-line records. The Jasper County Probation Department (JCPD) requested a similar system, which the team then developed and deployed. The JDS I2P[®] entry included a working demonstration of the team’s software, a comprehensive survey of the capabilities and constraints of other software for similar applications, and what the I2P[®] judges considered to be an outstanding study of the potential market for their software.

Two members of the JDS team used a portion of the prize money from the I2P[®] Competition to launch a start-up company, called Data Tracking Solutions, to further develop and market the JDS software. They have licensed the software from Purdue under the guidelines of the document included in Appendix I, have created a Board of Directors, and are exploring sales opportunities. This first spin-off from the EPICS program will be able to provide the benefits of the software developed within EPICS to any Probation Department that wishes to purchase it. The revenue obtained from these sales will enable the company to hire employees to support its customers, customize the software to each customer's specifications, and identify new product opportunities. It thus meets one of the goals of the EPICS Entrepreneurship Initiative: To spread the benefits of EPICS products to other communities through commercialization.

The Purdue students on the JDS team, with the continuing support of Purdue faculty and resources, will continue to provide new software and support for TCPD and JCPD at no cost. The team will thus continue to provide its student members a unique engineering design experience in a service learning context: they learn modern database design while providing a valuable service to the community.

The First-Place Team from the 2005 EPICS I2P[®] Competition

TEAM NAME: The Lafayette Adult Resources Academy (LARA) EPICS Team

TEAM GOAL: Design software and hardware systems to help adults learn to read and develop job skills, and assist people in learning English as a second language.

TEAM WEBSITE: <http://epics.ecn.purdue.edu/lara/>

The EPICS-LARA TEAM impressed the I2P[®] judges with their creation of Merlin's Magic Castle, an interactive computer environment designed for 3-10 year-old children. Upon entering Merlin's virtual castle, children are welcomed by a friendly wizard who offers an assortment of educational games including trivia, scavenger hunts, fill-in-the-blanks, and category quests. These games are unique because they are integrated with radio frequency identification (RFID) technology that enables the software to interact with real-world objects. The RFID technology consists of a transceiver (reader) and transponders (RFID tags). The tags are embedded into chosen objects or toys. When a child brings a toy within range of the reader, the tag is scanned and identified by the computer, thus allowing the toy and its name to be incorporated into the game. The games can be customized for any language, thus enhancing vocabulary and spelling education for bilingual children.

The LARA students that participated in the EPICS I2P[®] have gone on to refine their presentation and to enter the International I2P[®] Competition at U.T. Austin and the Burton D. Morgan Entrepreneurship Competition that is hosted by the Burton D. Morgan Center for Entrepreneurship and the Krannert School of Management at Purdue University.

The Second-Place Team from the 2005 EPICS I2P[®] Competition

TEAM NAME: The Bedford North Lawrence (BNL) High School EPICS Team

TEAM GOAL: Design a device that will help remind a student with cerebral palsy to swallow. This student is representative of a significant population throughout the world who, due to a neurological disorder, do not have the automatic swallow reflex. This causes them to drool, which may cause embarrassing social situations

The Bedford North Lawrence High School EPICS team, the first EPICS team to operate at the high school level, presented a Swallow Monitoring Device (SMD). It assists those with cerebral palsy or other neurological disorders that might cause swallowing difficulties. The team created a necklace that detects muscle motions in the neck associated with swallowing, thus making it possible to measure the time since the last swallow. If the time since the last swallow exceeds an adjustable threshold, a device the user wears around their waist will gently vibrate to remind them to swallow. This is a welcome alternative to medications for this problem that have left patients with disturbing side effects. The SMD thus offers a satisfying blend of comfort and privacy that will help patients to have more positive interactions with their peers.

The team has used resources from their I2P[®] Prize money to file a provisional patent on their device and has recently filed a utility patent. The team has worked on these patent applications with Bose McKinney and Evans, a sponsor of the EPICS Entrepreneurship Initiative.

5. References

1. The EPICS Program's website: <http://epics.ecn.purdue.edu/>.
2. E.J. Coyle, L.H. Jamieson, and W.C. Oakes, "EPICS: Engineering Projects in Community Service," *International Journal of Engineering Education*, Vol. 21, No. 1, pp. 139-150, January 2005.
3. The EPICS Entrepreneurship Initiative's (EEI) website: <http://innovate.ecn.purdue.edu/> .
4. The International Idea-to-Product[®] Competition (I2P[®]): <http://www.ideatoproduct.org/> .
5. The National EPICS Program: <http://epicsnational.ecn.purdue.edu/> .

6. Acknowledgements

The EPICS Entrepreneurship Initiative (EEI) is located in the Burton D. Morgan Center in Purdue's Discovery Park. It was launched and has been sustained by funds for Discovery Park from the Lilly Endowment. The 2006 EPICS I2P[®] Competition is supported by: the EEI; Hollister Incorporated; Bose McKinney & Evans LLP; San Jose State University; and the University of Texas at Austin.

Professors Steven P. Nichols and John N. Doggett of UT Austin created the product feasibility competition known as the Idea-to-Product[®] competition in 2001. For more information, please see: <http://www.ideatoproduct.org/ut/index.cfm>.

Appendix I

The following pages contain a copy of a key document defining the role of the EPICS Entrepreneurship Initiative in the commercialization of EPICS products. It is a signed agreement

between the EEI and Purdue's Office of Technology Commercialization (OTC) concerning intellectual property, royalties, and other issues related to the commercialization of EPICS products. It is significant because it establishes policies that enable EPICS IP and royalty agreements to be handled by OTC in a very rapid fashion.

This agreement is unique because it recognizes the special role that EPICS plays in the community near Purdue. Specifically, any royalty income is split equally up-front between Purdue and the project partner(s) that worked with the EPICS team on defining and developing the product that was commercialized. These project partners are all not-for-profit organizations, educational institutions, special programs within Purdue, etc., that would thus have access to a new stream of income should their EPICS projects result in successful commercialization efforts.

The agreement also establishes generous terms for any spin-off company formed by EPICS students. Specifically, in return for a small level of ownership, no royalties, fees, or periodic payments are expected until the company begins generating sales. After that point, a simple percentage-based royalty is assessed. The goal is enable the spin-off to begin selling its product as soon as possible in order to quickly bring its benefits to as many people as possible.

Intellectual Property Policies and Guidelines for EPICS Students, Advisors, and Project Partners

Engineering Projects in Community Service – EPICS – is an innovative program at Purdue University that creates partnerships between teams of undergraduate students and local community not-for-profit organizations to solve engineering-based problems in the community. This partnership provides many benefits to the students and the community alike. Its main goals are to broaden students' education to include experience with design as a start-to-finish process by defining, designing, building, testing, deploying, and supporting real systems and to bring affordable engineering expertise to community service and education organizations.

Purdue University has established policies governing intellectual property, inventions, etc., “that have the potential to benefit the public through practical application which may result from the activities of University personnel in the course of their duties or through the use, by any person, of university resources such as facilities, equipment, or funds.” These policies are established by the Office of the President and detailed in the university policy document referred to as Executive Memorandum B-10:

http://www.purdue.edu/oop/policies/pages/teach_res_outreach/b_10.html).

As part of the conditions of employment or as part of the conditions of enrollment and attendance at the University by students, employees and students (including non-compensated individuals) agree to the University ownership of intellectual property as provided by B-10, when they:

- participate in a sponsored research project; and/or
- make significant use of University Resources; and/or
- participate in teaching, research, or service projects.

Accordingly, all participants (both students and faculty) in the EPICS program assign the intellectual property developed as part of EPICS projects to Purdue University. This includes both patentable inventions and copyright protected materials, including software (since, in each case, the work is created pursuant to the terms of a University agreement with an external party). Thus, the University can assure the community partner access to the final work product or results, including appropriate rights under the associated intellectual property.

Students involved in EPICS design projects also need to be aware that the intellectual property developed has the potential to benefit more than the individual organization involved. Their innovations and creative work products may, in fact, be a valuable asset that can be further exploited for public benefit through commercialization. If your discussions with your EPICS Mentor/Coordinator lead you to believe that your work might be novel and have some commercial potential, it is appropriate for you to contact the Office of Technology Commercialization (OTC) to discuss the intellectual property and commercialization issues.

Working with Purdue’s Office of Technology Commercialization (OTC)

OTC works with inventors and creators to assure the best form of protection for University owned intellectual property, seeking potential licensees, negotiating agreements and successful

ongoing communications with the licensees. To initiate the process, you must complete a pre-disclosure from the OTC web site (available at the following URL: <http://www.prfrealestate.com/predisclosureform.html>).

EPICS teams may also want to consult directly with Technology Managers at OTC for guidance and advice on intellectual property protection or evaluation of the commercial potential for their project results. A listing of the staff is available online at <http://www.otc.purdue.edu/staff.html>.

If revenue is received from licensing Purdue intellectual property it is distributed according to university policy: one-third goes to the inventors or creators (inventors or creators also have the ability to share income with submitters who had a contribution to the project, but whose contributions do not rise to the level of inventorship), one-third to the department and one-third to the Purdue Research Foundation. In the case of EPICS projects, royalty income will first be split 50/50 with the project partner(s), and then divided among the above mentioned Purdue entities.

To protect the relationship between an EPICS team and its project partner(s), the licensing of EPICS-related IP or products developed by that team and its partner(s) to a company will require that the project partner(s) can continue to use the product/IP at no cost and as long as desired. Furthermore, the EPICS team can continue to modify and enhance the product and provide these to the project partner at no cost and with no royalty requirements.

Opportunities for New Venture Creation

If students involved with the EPICS team have an entrepreneurial interest in developing new ventures around technology they have created under the EPICS program, OTC in conjunction with the EPICS coordinator will work with the students to help them license the technology and commercialize it. In such cases OTC will typically ask for (1) a fully dilutable 0% to 10% equity share in the company formed to exploit the technology in lieu of upfront or scheduled fees, and (2) a modest 0% to 5% royalty on sales in conjunction with a marketing and development plan.

Office of Technology Commercialization

The Office of Technology Commercialization is a part of the Purdue Research Foundation. Some core functions of OTC are:

- Education of Purdue faculty regarding intellectual property and its commercialization
- Protection of Purdue intellectual property - patents, copyright, trademarks and know-how
- Marketing and licensing of Purdue intellectual property
- Facilitation of start-up companies based on Purdue technology
- Adding value to Purdue intellectual property through the Trask Innovation Awards Program
- Services provided by the office support the engagement and economic development missions of the university as well as benefiting academic activities such as attracting corporate research support and faculty recruiting

You can learn more about the office by visiting the OTC website at: <http://www.otc.purdue.edu/>