

**Active National Science Foundation Grants
at Sinclair Community College
August 3, 2006**

Collaborative Scholarship Program

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0122994	Patricia Santoianni	David Meyer Vickie Lair	Elizabeth Teles	\$395,830	January 1, 2002	December 31, 2006	March 31, 2007	Not applicable	Not applicable

This project is creating a scholarship program for Computer Information Systems, Engineering and Industrial Technologies, and Mathematics majors at the associate degree level. Faculty and staff are working together across institutional divisions to meet students' educational needs and facilitate their success. The program builds upon a current Sinclair NSF project aimed at increasing participation in engineering technology programs: Image and Marketing of Engineering Technology Education (DUE 0071103).

The program is increasing the number of students obtaining associate degrees or transferring to four-year institutions in the areas of computer science, computer technology, engineering, engineering technology, and mathematics (CSEMS). It also support students entering the workforce in CSEMS disciplines. The program has three primary goals: 1. To increase the success of CSEMS students through scholarships and the provision of support services that promote full-time enrollment and the attainment of Associate Degrees in CSEMS disciplines. 2. To assist student transfer to four year institutions to continue their education in a CSEMS discipline. 3. To increase the participation of low-income, academically talented students in CSEMS careers, especially students of underrepresented groups.

The project is meeting a growing demand for entry-level technicians in computer science and engineering disciplines. It is being led by a collaborative team of faculty from the Computer Information Systems Division, the Division of Engineering and Industrial Technologies Division, and the Mathematics Department. To support these efforts, these faculty are drawing upon the expertise of four Senior Personnel of the Financial Aid Office, Student Support Services Program, and Academic Counseling Services.

Key Deliverables

Internal marketing brochures and posters

Web Site

None

Enhancing the Resource Center Role of the National Center for Manufacturing Education

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0302328	Monica Pfarr	Robert Wolff	Elizabeth Teles	\$1,494,467	June 15, 2003	May 31, 2007	August 29, 2007	Gloria Rodgers, Rose-Holman Institute of Technology	
		Henry Kraebber							
		Shepherd Anderson							

Abstract

The National Center for Manufacturing Education at Sinclair Community College (Dayton, OH) and its academic and industry partners are expanding upon their Resource Center and Technical Assistance roles. The goals of the Resource Center are:

(1) To be a clearinghouse of readily accessible resources for improving manufacturing education. The steps that are being undertaken to satisfy this goal include: (a) Establishing a process and the criteria for determining center-approved resources to be included in the database. (b) Classifying center-approved resources to facilitate efficient access. (c) Developing and maintaining a website as the primary means of user access. (d) Developing links to other organizations and entities that provide information or materials relevant to manufacturing education. (e) Developing and implementing a clearinghouse dissemination strategy that includes the use of brochures, abstracts, how-to-find flyers, and conferences. (f) Obtaining periodic feedback from existing and potential users as to the scope of materials and the features of the clearinghouse, for continuous improvement.

(2) To provide support services for stakeholders on the effective use of the Resource Center and the implementation of its products by: (a) Developing and offering services that provide professional development opportunities on manufacturing related subject topics. (b) Developing and offering services that provide assistance to institutions and their faculty that wish to start or improve manufacturing technology programs. (c) Assessing the services related to manufacturing education on a periodic basis for the purpose of continuous improvement.

Intellectual Merit: The project is developing a national clearinghouse of manufacturing education instructional materials. The Center uses its web site as a primary national clearinghouse for exemplary manufacturing education materials. Materials are selected by peer review, categorized, and incorporated into a searchable database. The site has information and links to Internet sites. Center staff provide professional development/consulting in faculty professional development; adapting and adopting new manufacturing curricula and course materials; and starting and improving manufacturing technology programs.

Broader Impacts: The project is disseminating effective models and pedagogical approaches in technical science, technical mathematics, and manufacturing education. The peer reviewed instructional materials focus on integrating research activities into classroom teaching of manufacturing at the undergraduate level. Faculty use the materials resulting in improved student learning. This project involves collaboration between disciplines (technical mathematics, technical science, and manufacturing technology) and several types of institutions including colleges, universities, industry, and professional associations to improve manufacturing education. The project is disseminating exemplary learning materials and providing technical assistance to community college faculty and administrators.

Key Deliverables

Web site, resource center of curriculum materials in manufacturing education and related disciplines

Web Site

www.ncmeresource.org

presence for four year project)

Person in charge of web site: Derek Hardin **Web Site Budget:** \$137,652 (design and maintenance and creation of national

IT@Sinclair: Improving Student Retention in IT Programs

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0302540	Charlotte Wharton	David Siefert Nancy Thibeault	Gerhard Salinger	\$314,547	July 1,2003	June 30, 2007	September 28, 2007	Pamela Tate, CAEL	

Abstract

Building on the success of IT@Sinclair, Sinclair Community College addresses the issue of student success and retention in information technology programs. Retention in foundation IT courses is a national issue. The goal is to gain a 20% increase in student retention and success. Since retention is a complex relationship among the student, the faculty and the course content, the college and its educational and industrial partners develop instruments to assess student readiness, instructor resource kits, and a faculty institute. The readiness instrument addresses motivation, expectations, intent, capabilities, goals, etc. and assists faculty advising students. The course content supporting Information Services and Support, Network Systems, Programming and Software Development, and Interactive Media is based upon itWORKS.OHIO. Instructor Resource Kits, also based on itWORKS.OHIO competencies, assist especially part time faculty develop the pedagogical content knowledge and skills to serve as learning facilitators. A faculty professional development plan is developed. Extensive evaluation of the instrument and the resource kits and the lessons learned are to be widely disseminated through workshops in other regions of Ohio. Special attention is paid to the retention of underserved minority students.

Key Deliverables

Instructor resource kits, faculty development workshops

Web Site

<http://it.sinclair.edu>

Person in charge of web site: Nancy Thibeault

Web Site Budget: \$4,500 (updates)

A Distributed Hybrid Approach to Creating a Community of Practice Using NSF Funded Manufacturing Engineering Technology Curriculum Modules

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0302574	James Houdeshell	Kate Brown	Kenneth L. Gentili	\$299,947	August 15, 2003	July 31, 2007	October 29, 2006	Social Science Research Evaluation Inc.	Not applicable
		Paul Giguere							
		Sherry McAndrew							
		Gilah Pomeranz							

Abstract

The Society of Manufacturing Engineers has documented the need for qualified technicians and manufacturing practitioners, at the same time the number of TAC/ABET accredited associate degree programs has decreased. The impact of our project is intended to be national in scope and could change the delivery of educational content by adding another point on the continuum between pure face-to-face and pure web-based. Our National Center of Excellence for Advanced Manufacturing Education (NCE/AME) will lead the development and testing of a distributed hybrid instructional delivery process as a method for increasing the number of students in Technology Accreditation Commission of the Accrediting Body for Engineering and Technology (TAC/ABET) accredited associate degree programs by providing greater student geographic access. Our proposed distributed-hybrid instructional delivery method uses face-to-face modular instructional while at the same time provides the ability for the small groups to function as part of a larger class even with temporal and geographical shifts. The overall goal of this project is to develop, test, and evaluate the effectiveness of new web-based primary instructional materials, leading to a certificate in Continuous Process Improvement (CPI) that utilizes our distributed-hybrid delivery model.

Key Deliverables

Distributed hybrid modules for eight courses.

Web Site

Course materials to be hosted on National Center for Manufacturing Education site:

www.ncmeresource.org

Faculty Development in Collaborative Design and Rapid Tooling and Manufacturing

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0402023	Tom Singer	Steve Wendell	Elizabeth Teles	\$314,223	September 1, 2004	August 31, 2007	November 30, 2006	N/A	Not applicable
		Scot Rabe							

Abstract

This professional development project for engineering technology faculty is a partnership between Sinclair and Ventura College (Ventura, CA). The goal of the project is to provide comprehensive professional development on Collaborative Design and Rapid Tooling and Manufacturing for engineering and design technology faculty. During the summers of 2005 and 2006, engineering faculty will participate in Summer Institutes offered concurrently in Dayton and Ventura in the two tracks. Extensive academic year follow-up activities are also planned. Each year 40 engineering technology faculty members (20 in Dayton and 20 in Ventura) will participate.

Key Deliverables

- Curriculum enhancements
- Equipment sharing network among colleges
- A community of practice through discussion forums, chat, and e-mail

Web Site:

<http://www.designcollaborative.org/>

Collaborative Project: Air Force Institute of Technology and Sinclair Community College: Building Core IA Educational Capacity

Award #	Project Director	PIs	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
00516225	Bob Sherman	Michael Porter Richard Raines Air Force Institute of Technology	Diana Gant	\$100,000	September 1, 2005	August 31, 2007	November 30, 2006	N/A	Not applicable

Abstract

The Center for Information Security Education and Research at the Air Force Institute of Technology (AFIT) and Sinclair will form an educational partnership for the advancement of information assurance (IA) awareness, education, and knowledge. The partnership will allow AFIT faculty, IA curricula, and laboratory resources to be shared with Sinclair faculty as Sinclair grows IA faculty and programs.

The faculty development component will build upon existing Sinclair faculty IT expertise to extend their academic programs into the IA arena. The two focus areas for expansion of Sinclair’s IT/IA curriculum are cyber forensics and secure software design. Besides developing an IA-focused curriculum at Sinclair, the PIs will posture Sinclair for becoming a Center of Academic Excellence in IA Education. AFIT and Sinclair will determine the present state of Sinclair’s IT program as it relates to mapping against national training standards. .

Key Deliverables

1. Document mapping current Sinclair Information Assurance courses against national standards
2. Revision of Sinclair curriculum to meet national standards
3. New cyber forensics and secure software design courses
4. Sinclair faculty attainment of advanced degrees, certificates, and industry standard certifications

Web Site: N/A

Faculty Development in Automotive Hybrid Vehicle Technology

Award #	Project Director	PI	NSF Program Officer	Award	Start Date	End Date	Final Report	External Evaluator	National Visiting Committee
0603024	Rex Kent	David Stover	Herbert Richtol	\$140,000	April 1, 2006	March 31, 2008	June 30, 2008	Miami University in Middletown	Not applicable

Abstract

This project will provide faculty development in advanced hybrid technology in the summer of 2006. Community college faculty from Ohio and surrounding states will participate in a week-long summer institute to learn about cutting edge advanced hybrid vehicle technology and nickel hydride batteries from the leaders in the industry.

Participating faculty will use the concepts and new knowledge in their classrooms to enhance classroom and laboratory components, and participate in academic year follow-up activities are planned. This two-year project will ensure that automotive technicians have the skills and knowledge required for the rapidly expanding hybrid technology automotive industry. The project is a collaborative venture with Toyota Motor Corporation, American Honda Motor Company, Ford Motor Company, and General Motors Corporation.

Web Site: To be announced