

IWITTS Awarded NSF Grant to assist California Community Colleges in Recruitment and Retention of Women in Emerging Technology Programs

Great news!

IWITTS has been awarded a \$2 million National Science Foundation (NSF) Award to fund the CalWomenTech Project. Through this five-year grant, California community colleges will receive expert support and technical assistance to help recruit and retain women into technology programs where they are under-represented.

Tech Centers: would you like to recruit more women to your programs – and retain them, too?

Eight to 10 community colleges will be selected via a competitive process to receive **free** intensive CalWomenTech training and assistance on recruiting and retaining women in technology programs in which they are under-represented.

Go to http://www.iwitts.com/html/calwomentech_summary.html **to apply** to become a CalWomenTech site.

The 8-10 selected community colleges receive intensive training and technical assistance from national experts!

- Attend a FREE two-day CalWomenTech training, and develop your own recruitment and retention plan then and there!
- Receive recruitment materials customized to your program including flyers, posters and a WomenTech section for your community college's website.
- Have access to a state-of-the-art lending library of best practice resources to find out what's already working to recruit and retain women.
- Take advantage of additional valuable training and share updates at meetings of CalWomenTech teams every 6-12 months.
- Receive individualized consultation and technical assistance as you implement Project strategies by our team of experts.
- Attend FREE periodic online trainings and conference calls on specialty topic areas with expert guest speakers and facilitated peer-to-peer technical assistance online.
- Learn from your community college peers – and share what you've learned – via peer mentoring on CalWomenTech strategies.
- Gain access to the knowledgebase developed by the CalWomenTech community college teams as they implement their recruitment and retention plans.

CalWomenTech resources available to all community colleges

If you're not selected as a CalWomenTech site, your CA community college can still benefit!

- Visit the CalWomenTech section of the IWITTS website to read about best practices and to participate in the CalWomenTech online community.

- Attend presentations by IWITTS at key conferences in the California community college system.
- Take advantage of IWITTS's existing technology solutions from previous grants.

Project Expertise:

This is IWITTS's third National Science Foundation grant, and the second grant in which IWITTS will work with community colleges to increase the number of women in technology. Donna Milgram, the Principal Investigator (PI) for this grant and the two prior grants, has provided training and technical assistance on recruiting and retaining females in technology programs in 42 states. IWITTS has expertise working with NSF Advanced Technology Education (ATE) centers nationally and with community colleges in California. We also have a highly skilled National Advisory Committee to support and inform the project. Our community college partner is the City College of San Francisco, which is also the recipient of an ATE grant from NSF, the "Institute for Convergence of Optical and Network Systems" (ICONS) Project.

CalWomenTech Project Goals

The primary goal of the CalWomenTech Project is to increase the number of women enrolled and retained in Science, Technology, Engineering and Math (STEM) education in 8-10 selected CalWomenTech community colleges with emerging technology centers (i.e. Advanced Technology Education Centers or California Community College Technology Centers).

Ensuring an Effective Project: our Total Quality Management Model

We've built a Total Quality Management (TQM) approach directly into this project. Throughout the project, we'll ask for, and incorporate, feedback about our services from our community college team members to make sure we're on track.

Timeline

CalWomenTech site applications due back by February 16, 2007!

Training and Technical Assistance – CalWomenTech Sites

The 8-10 selected community colleges receive FREE intensive training and technical assistance from national experts!

- **Two-day CalWomenTech training including development of a recruitment and retention plan.** Based on IWITTS's highly successful WomenTech Educators Train-the-Trainer course (http://www.iwitts.com/html/state___local_training.html) this training combines lecture outlining best practices with an interactive video, case studies, and the development by each Center of their own recruitment and retention plan with action steps and a timeline. Two to three technology centers will come together in each training, for a total of 20 to 40 participants in each. Each participant will receive a CalWomenTech Educators Toolkit to take away, including both IWITTS's existing products and those developed especially for this Project.

- **Multi-media recruitment materials and collateral customized for each community college team.** The CalWomenTech Project’s experienced consultant team will develop a template for recruitment materials – and customize the materials with input from the teams. Template collateral materials will include:
 - Recruitment flyer, poster, college catalogue page, banner
 - Content, architecture and navigation of a WomenTech section of the CalWomenTech community college’s website
 - Sample press release, public service announcement
 - Sample flyer, e-mail, letter and talking points for recruiting female role models in STEM

- **Lending library of best practice resources for preview by CalWomenTech team members.** The CalWomenTech team will develop a lending library of best practice resources that team members can preview and use to make informed decisions about educational purchases. Examples may include technology bridge curriculums or tools such as a microscope to assist in learning spatial relations. These materials are not developed or owned by IWITTS.

- **Follow-up meetings of CalWomenTech teams every 6-12 months to present progress updates and receive additional training.** Training needs will be identified via quarterly online evaluations of the Project. In the third year of the Project, a CalWomenTech user conference will be held in which all the community colleges will make presentations on their recruitment and retention strategies to each other. The Project will fund several team members to come from each college, with participation tied to completion of the quarterly evaluations.

- **Individualized consultation and technical assistance to the Community College Centers as they implement Project strategies.** Methods of support may include e-mail and phone support, as well as on-site technical assistance and facilitation. Two on-site technical assistance visits of two days each have been budgeted for each of community college during the first year of the Project and one to two visits for subsequent years (in addition to the joint trainings and meetings every 6-12 months). Each of the Centers will be given an annual consultation and technical assistance “time budget” of credits that they can redeem for assistance. High performing teams can receive extra technical assistance credits for their efforts; conversely, low performing teams could face loss of capital for little effort.

- **Periodic on-line trainings and informational phone conference calls on specialty topic areas with expert guest speakers and facilitated peer-to-peer technical assistance online.** These online trainings and phone calls also will be available to the wider California community college system.

- **Multiple opportunities for peer mentoring on CalWomenTech strategies.** Strategies will include women and technology clubs, real-time mentoring, support groups, and written tools such as survival handbooks. Students will also have access to online mentoring tools such as the womentechworld.org’s WomenTechTalk listserv, IWITT’s e-mentoring software, and the WomenTech message board.

Facilitated sharing of new products developed by the CalWomenTech community college teams as they implement their recruitment and retention plans. While IWITTS will be sharing its expertise and the best practices of others, there is still a dearth of off-the-shelf classroom tools for technology that appeal to females. IWITTS fully expects that classroom tools for technology will be developed in the course of the five year Project that appeal to female interests and learning styles. For example, an engineering class may develop a robotics activity that has the robots involved in performance art rather than a competition, an activity that would appeal to many females. IWITTS will disseminate related lesson plans among the CalWomenTech teams for their use.

What if I'm not selected? Can I participate, too?

Yes! Any California community college has access to the following services.

CalWomenTech resources available to all community colleges

- **Access to a CalWomenTech section of the IWITTS website for sharing best practices, mentoring, and peer-to-peer communication.** The site will serve as both a knowledge base of best practices from the national education community and (as the Project advances) best practices from the CalWomenTech Centers. It will also include a CalWomenTech online community for peer-to-peer communication and mentoring via a CalWomenTech educators listserv that IWITTS will host and moderate. The Project will draw the entire California community college system into the CalWomenTech section of the IWITTS website via a CalWomenTech e-newsletter which will feature best practice information and case studies as the Project matures.
- **Presentations by IWITTS at key conferences in the California community college system.**
- **Coverage of the CalWomenTech Project in the California education press online and offline.** Media coverage of the CalWomenTech Project spreads knowledge of best practices for recruiting and retaining females to STEM courses.
- **Access for the CalWomenTech Centers to IWITTS's existing technology solutions from previous grants.** For example, students will be able to receive peer support at www.womentechworld.org's WomenTechTalk listserv that now has over 400 members. They can also post messages on the WomenTech messageboard or use IWITTS's e-mentoring software solution to become a mentor or find a mentor.

Project Expertise

The Institute for Women in Trades, Technology & Science (IWITTS) takes the lead role.

IWITTS's NSF WomenTech Project

IWITTS developed solid experience in the Community College System nationally during the organization's successful leadership of the WomenTech Project, (http://www.iwitss.com/html/womentech_project.html) a three-year National Science Foundation project, providing training and technical assistance to three community college demonstration sites – the Community College of Rhode Island, North Harris College and College of Alameda in California – to help them increase the number of females enrolled and retained in technology programs. IWITTS authored the WomenTech Best Practices CD (<http://www.womentechstore.com/edpedcd35.html>) based on this community college project. IWITTS has trained hundreds of community college educators via its WomenTech Educators Train-the-Trainer Workshop (http://www.iwitss.com/html/state__local_training.html).

The principal investigator of the WomenTech Project was Donna Milgram, Executive Director and Founder of IWITTS, who has served as PI for three NSF grants. Read Ms. Milgram's bio and resume at http://www.iwitss.com/html/donna_milgram_education_bio.html.

NSF Advanced Technology Education Center Experience

IWITTS Executive Director, Donna Milgram, presented at the 2004 NSF Advanced Technology Education (ATE) Center's National Conference as part of a "Marketing" Workshop. IWITTS has provided WomenTech two-day trainings to the following NSF ATE Centers:

- ATE Center for Convergence Technology, Frisco, TX
- Midwest Center for Information Technology, AIM Institute, Omaha, NE
- Center for the Advancement of Process Technology, Mainland College, Texas City, TX
- ATE Regional Center of Excellence in Telecommunications, Community College of Southern Nevada
- SC ATE Center of Excellence for Engineering Technology Education
- ATE Project – Univ. of North Carolina at Charlotte's Engineering Technology Department

California Community College Experience

IWITTS has provided WomenTech Train-the-Trainers Workshop to the California community college system:

- SouthWestern College, Chula Vista, CA
- Rio Hondo Community College District, Whittier, CA
- Los Rios Community College District, Sacramento, CA
- Los Angeles (CA), Orange County Workforce Development Leaders
- Tech Prep Consortium, Cabrillo College, Los Aptos, CA
- San Diego (CA) County Office of Education

IWITTS has also made presentations on WomenTech themes at the following California Education Conferences and Networks:

- California Educating for Careers Conference (Statewide)

- Vocational Technology Education Association (VTEA) State Leadership for Industry and Technical Education, Quarterly Meeting (California community college system)

View IWITTS's client list at http://www.iwitts.com/html/client_list.html.

Project Community College Partner: City College of San Francisco

The City College of San Francisco (CCSF) is our partner for the CalWomenTech Project grant, and Carmen Lahma will serve as the Co-Principal Investigator. Ms. Lahma is the Chair of the Computer Networking Information Technology (CNIT) Department at CCSF, and her Department also has an ATE grant from NSF, "Institute for Convergence of Optical and Network Systems" (ICONS) Project.

Ms Lahma will serve on the National Advisory Committee of the Project and will oversee CCSF's role in the Project. She will provide advice and guidance overall and testing of strategies and technical solutions. She will also provide us with consultation on the feasibility of strategy implementation from the ground level. Concurrently, CCSF will also be one of the eight to ten community colleges receiving technical assistance during the course of this grant.

Donna Milgram – Principal Investigator

Donna Milgram, Executive Director of IWITTS, will serve as the principal investigator (PI) of the CalWomenTech Project. Ms. Milgram served previously as the PI of two NSF projects, most recently the "WomenTech Project," which increased the number of women enrolled and retained in technology education in three national community college demonstration sites. Earlier, she served as PI for the "School-to-Work: Women in Science, Engineering & Math Project," which produced the widely-used interactive teacher training video "School-to-Work: Preparing Young Women for High Skill, High Wage Careers." Ms. Milgram has also served as a gender equity consultant to a half-dozen NSF ATE Centers and projects based in community colleges on recruitment and retention of women. Ms. Milgram led the IWITTS partnership with the Cisco Learning Institute, developing the domestic portion of the Cisco Gender Initiative. She has developed extensive resource publications and conducted hundreds of workshops on recruiting and retaining women in technology education and related occupations at state and national conferences and for state and local educational institutions. Read more of Donna Milgram's education bio at http://www.iwitts.com/html/donna_milgram_education_bio.html.

National Advisory Committee

- **Dr. Ken Berry**, Associate Professor, Educational Technology, California State University, and Founder RoboEducators, Northridge, CA
- **Dr. Cecilia Cervantes**, President, College of Alameda, Alameda, CA
- **Connie Elder**, Coordinator, Computer and Information Science Department, Cuyamaca College, El Cajon, CA
- **Dr. Marshall Gartenlaub**, Statewide Director, Centers for Applied Competitive Technologies, (CACT), Economic & Workforce Development, Alta Loma, CA
- **Dr. Scott Griffith**, Director, Engineering and Technology Center, American River College, Sacramento, CA
- **Carmen Lamha**, Chair, Co-PI for CalWomenTech and ICONS ATE Project, City College of San Francisco, Computer Networking and Information Technology, San Francisco, CA
- **Dr. Edward Leach**, Vice President - Services and Programs, League for Innovation in the Community College, Phoenix, AZ
- **Cris McCullough**, Associate Vice President of Workforce Education, American River College, Sacramento, CA

- **Donna Milgram (PI)**, Executive Director, Institute for Women in Trades, Technology, and Science, Alameda, CA
- **Dr. Ralph Mills**, Vice President, Small Manufacturers' Institute, 28067 Braidwood Drive, Rancho Palos Verdes, CA
- **Dr. Sarah A. Rajala**, James Worth Bagley Chair and Department Head, Department of Electrical and Computer Engineering, Mississippi State University, Mississippi State, MS
- **Ron Selge**, Dean, California Community Colleges, Sacramento, CA
- **Pierre S.Thiry**, Ph.D., PE, CCAI, Instructor & PI, Institute for Convergence of Optical and Network Systems (ICONS), City College of San Francisco, Computer Networking and Information Technology, San Francisco, CA
- **Albert Tweltridge**, Administrator, Regional Occupational Centers and Programs and Workforce Development Unit, California Department of Education, Sacramento, CA
- **Dr. Mara Wasburn**, Assistant Professor, Organizational Leadership, College of Technology, Purdue University, West Lafayette, IN

Project Consultants

Dr. Marshall Gartenlaub is State Director, Applied Competitive Technologies (Engineering and Manufacturing) of the California Community Colleges, Economic & Workforce Development Program and also Chairs, the VTEA Statewide Advisory Committee (California Community Colleges).

Dr. Scott Griffith is Dean of the Engineering Technology Center, a statewide Project funded by the California Department of Education and NSF's ATE Program. Dr. Griffith was the Coordinator of the California Educating for Careers Conference in 2002. As mentioned earlier, Dr. Griffith is currently a PI for the RoboEducators Project, an ATE Project sponsored by the Los Rios Community College District. He has convened a national RoboEducators conference for the past two years, and he has strong connections with the national NSF ATE community.

Project Evaluator

Dr. Sylvia J. Barsion specializes in research and evaluation of educational programs, and has worked in the nonprofit sector for over 30 years. In 2000, she founded SJB Research Consulting, Inc., a research and evaluation firm, where she has served clients including Harvard Medical School, MentorNet, Techbridge, University of California (Berkeley), Classroom, Inc., and The Initiative for Nonprofit Sector Careers. Earlier, Dr. Barsion was the National Director for Research Services and Adult Development at the national office of Girl Scouts of the USA, where she initiated outcomes studies assessing the results of girls' and adults' participation in Girl Scouting that continue today. Dr. Barsion received her Ph.D. in Educational Research, Measurement and Evaluation from Boston College in 1985. Dr. Barsion has published numerous articles in scholarly journals, made major presentations at national meetings, and taught graduate level courses in research design, testing and statistics.

We'll ensure effective extension services with a TQM approach

The CalWomenTech Project understands the importance of continuous feedback, and has built a Total Quality Management (TQM) approach directly into the program. We will ask our community college team members for frequent input about our services to make sure we're on track.

Each CalWomenTech community college team member completes a quarterly evaluation to rate the quality of the extension services so that project staff can continually improve the services delivered throughout the life of the Project. The Project will also seek immediate feedback after

each training or event that it hosts via surveys specially designed to elicit feedback to measure effectiveness and improve performance. Through these ongoing feedback collection methods, IWITTS will be able to develop a service that truly meets the needs of the end-user, the California community college system and the educators who make up these institutions.

CalWomenTech Project Goals

- Increase the number of women enrolled and retained in Science, Technology, Engineering and Math (STEM) education in 8-10 selected CalWomenTech community colleges with emerging technology centers (i.e. Advanced Technology Education Centers or California Community College Technology Centers).
- Institutionalize gender equity strategies in each participating college beyond the life of the Project.
- Illustrate to the California and national community college system that STEM gender equity strategies increase recruitment and retention of women in STEM courses, through both state and national dissemination of the Project.

Anticipated Outcomes:

- Increased enrollment of women by an average of 10 to 15% in targeted STEM classes!
- A retention rate for females that is comparable to males in targeted classes.
- CalWomenTech recruitment and retention strategies incorporated directly into the college's regular practices.
- Dissemination of successful CalWomenTech strategies statewide and nationally via the mainstream education system.
- Increased focus of the California community college system on recruitment and retention of females into STEM.

What is the CalWomenTech Project's Ultimate Goal?

The CalWomenTech Project expects to demonstrate to the community college system that recruitment and retention of women in STEM is possible via the success of its CalWomenTech community college teams. The Project will provide the system with the tools needed for enhanced recruitment and retention efforts via the best practices content of the CalWomenTech section of its website, as well as through the new tools that will be developed for implementation by CalWomenTech teams and the online trainings, informational conference calls, and state conference presentations.

Timeline

The CalWomenTech Project Grant runs from April 2006 to March 2011.

By March of 2007, we will select four to five California community colleges to participate via a competitive process, in time for training in the spring of 2007, with the next group of community colleges coming on-board the following year.

On October 13th 2006, we held our first one-day National Advisory Committee meeting, and we will hold the second in February/March 2007. We plan to develop the CalWomenTech best practices section of our website, our traveling gender equity lending library of materials and the accompanying training and technical assistance package, recruitment and collateral materials by spring of 2007.

Apply to be a CalWomenTech site at

http://www.iwitts.com/html/calwomentech_summary.html! Request for Application due by February 16, 2007