



MAYOR NEWSOM AND CITY COLLEGE ANNOUNCE MAJOR NATIONAL SCIENCE FOUNDATION GRANT

*\$750,000 grant will greatly expand job-training
opportunities in emerging digital media industry*



City College
CNIT
Department
Chair
Carmen
Lamha
greet's San
Francisco
Mayor Gavin
Newsom at
Press Event

SAN FRANCISCO, CA 11/10/05 – Mayor Gavin Newsom joined representatives of City College of San Francisco to announce the receipt of a three-year \$750,000 grant from the National Science Foundation (NSF) Advanced Technological Education (ATE) program to develop the Institute for Convergence of Optical and Network Systems (ICONS).

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CITY COLLEGE OF SAN FRANCISCO CONVENES ADVISORY PANEL FOR NSF NETWORK & INFORMATION TECHNOLOGY ICONS GRANT

City College of San Francisco (CCSF) hosted the first Advisory Panel meeting for its new Institute for Convergence of Optical and Network Systems (ICONS) on January 20th, 2006. ICONS is funded in part by a 3 year, \$750,000 grant from the National Science Foundation (NSF), establishing as a national priority goals for advancing training of 21st century networking and information technology specialists. The ICONS award was announced in a press release by San Francisco Mayor Gavin Newsom on November 10, 2005.

CCSF Chancellor Philip R. Day opened the meeting with a warm welcome and expressions of appreciation. He spoke of great advances made in CCSF facilities and communications infrastructure; thanks to community support via Proposition A bond funds which now enable the school to advance its instructional and community service missions with initiatives like ICONS.

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FIBER OPTIC & VOIP COURSES BEGIN

ICONS has developed and initiated instruction in the Spring 2006 semester for its first two new courses: Fiber Optics and Voice over Internet Protocol (VoIP).

Fiber Optic Technology

(CNIT 211 / ELEC 211)

taught by CNIT
instructor Sam
Bowne is fully
enrolled.



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Serving an estimated 1,200 students needed to support the growth of new industries like digital media, the NSF grant will allow City College to update and create new course offerings in the fast-growing information and communication technology field. Students at the newly formed Institute will get hands-on training through a partnership with the City's Department of Telecommunications and Information Services (DTIS) that will also connect CCSF campuses City wide. The Institute will also focus on recruiting and retaining traditionally underserved students in the field of Information and Communication Technology.

Mayor Newsom hailed the Institute as a vital component of the City's economic future saying, "We need to focus on creating lifelong employability because graduating from high school is no longer a guarantee for employment." The Mayor continued, "The industries of the future like bio-tech, commercial life sciences and digital media demand that we provide a highly-skilled, trained workforce – the Institute is an important step in this direction."

"Once again, City College is at the cutting edge of technology with the recent award of the National Science Foundation grant for the development of City College's new Institute of Convergence of Optical and Network Systems," said Rodel E. Rodis, President, CCSF Board of Trustees, adding, "The NSF grant will provide the College with the funds to update and create new course offerings in this field and to develop an A.S. degree in Information and Communication Technology."

City College Trustee Johnnie L. Carter, Jr., said, "This grant underscores the continuing commitment of City College to focus on programs that link workforce preparation and economic development. In this particular case, the focus is on information and communications technology which is an area of critical need and opportunity for City College, the City of San Francisco and the Bay Area. As Chair of the Board's Technology Committee, I am very pleased that the College has been awarded this prestigious and timely award."

"This is a "great news" item – great for the community, the College's faculty and staff, and most importantly the students that we serve who will benefit from the training associated with this initiative and the high-wage, value-added jobs for which they will be prepared," states Dr. Philip R. Day, Jr., Chancellor.

The NSF grant positions City College as a national model: CCSF Faculty will disseminate all project products and findings to other colleges nationwide with the support of this grant. The grant funds will be used to develop an Associate of Science (AS) Degree in Information and Communication Technology, but also

two certificate programs, one in Metropolitan Optical Networking and the other in Advanced Optical Networks, focusing on the growing fields of Internet Protocol convergence and fiber optic communications.

Professor Pierre Thiry, who is the Principal Investigator (project leader), notes, "The jobs that this program will lead to are needed to manage communication networks locally. They are not about to be outsourced to other countries." The College estimates that the NSF grant will enable about 1,200 students to enroll in the optical/network system courses.

Enjoining project investigators Carmen Lama and Tim Ryan point out that students will get hands-on experience from two important projects: a Metropolitan Area Network being installed in partnership with the City of San Francisco, Department of Telecommunications which connects CCSF campuses district-wide, and the College's recently installed Voice-Over Internet Protocol telephone system from Alcatel, a platform that will be partially supported and maintained by students in the new Institute.

Additionally, the new Institute will provide faculty development in the fields of convergence and optical and network systems who will be assisting other colleges in implementing technician training that focuses on this emerging growth industry. Principal Project Investigators will disseminate all project products and findings to other colleges nationwide with the support of this grant.

Industry leaders who wrote letters in support of the grant included Lynn Bumin, Executive Director, External Affairs, SBC, who stated "We are constantly seeking alternative training programs to keep our technology staff educated on the latest advances in this field. The City College program will offer another avenue for our continual development of our staff forces."

Dennis C. Frezzo, Manager, Research and Development, Creative Learning Studio, Cisco Systems, Inc., noted, "Just as eight years ago the Cisco Networking Academy Program helped address the needs for introductory level networking technicians, the needs of society for technicians trained in optical and Metro Ethernet technologies should also be addressed today."

The National Science Foundation, headquartered in Washington, D.C., is an independent federal agency created by Congress in 1950. With an annual budget of approximately \$5.5 billion, NSF is the funding source for about 20 percent of all federally supported basic research conducted by America's colleges and universities.

Founded in 1935, City College of San Francisco serves over 100,000 credit and noncredit students annually in some 100 instructional sites throughout San Francisco.

Tim Ryan, City College Network Manager and Co-Principal Investigator of ICONS, provided background on City College, which is one of the largest colleges in the world, serving more than 106,000 very diverse students this year, with more than 4,700 courses in 50 academic programs & over 100 academic disciplines, by a faculty and staff of more than 2,000.

Modernized CCSF communications infrastructure includes new campus wiring systems, extensive high-speed LANs, a modern VoIP telephone environment with more than 2,000 handsets and WiFi wireless network access points at major campuses. CCSF has also completed, in partnership with the City and County of San Francisco, a fiber optic intercampus network, tying CCSF campuses together and to a major data center with Gigabit speeds today, virtually unlimited bandwidth in the future, a 100Mbps public Internet connection (>1500 times faster than dialup connection) and 900Mbps to other California educational institutions via Corporation for Educational Network Initiatives in California (CENIC) optical backbones.

Carmen Lamha, Computer Networking and Information Technology (CNIT) Department Chair and ICONS Co-Principal investigator, provided background on the CNIT department, which currently provides 1775 students 56 course offerings, 10 academic certificates, and 10 industry certificates with a staff of 23 at an incredible value, \$26 per unit for credit and free for non-credit training. The CNIT is a Cisco Regional Networking Academy.

Pierre Thiry, ICONS Principal Investigator and CNIT Instructor, described how the NSF, through its Advanced Technology Education (ATE) program has awarded CCSF \$750,000 over 3 years to advance training of next generation IT and networking technicians. CCSF's Bio-Link ATE Center is a widely admired program at CCSF to develop, disseminate and promote advanced biotechnology technical training, which has played a key role in biotechnology industry successes in the Bay Area and in attracting the California Stem Cell research project to locate in San Francisco. Similarly, ICONS hopes to stimulate the economy by cost-effectively developing, disseminating and promoting advanced training for the next generation of IT and Networking technicians. Pierre described each of ICONS major goals:

- Modernizing the CNIT Department
- Developing New Courses & Certificates
- Developing a new AS Degree
- Expanding Articulation and Transfer Opportunities
- Recruiting Under-Represented Students
- Developing and Utilizing Technology Infrastructure

- Expanding Internship and Job Placement Opportunities
- Providing Staff Development, Seminars and Workshops

James Jones of Photisis Consulting then facilitated introductions of Advisory Panel members, including:

- 1) 15 CCSF faculty, staff & administrative members,
- 2) Other educational institutions, represented by:
 - The Corporation for Educational Networking Initiatives in California (CENIC)
 - The Institute for Telecommunications Technologies (IT²) at Cuyamaca College
 - The National Center for Telecommunications Technology (NCTT) at the Springfield Community College NSF ATE Center in Massachusetts
 - Cabrillo College
 - California State University - Monterey Bay, School of IT and Communications Design
 - The San Francisco Unified School District (SFUSD)
- 3) Communications equipment manufacturers, including:
 - Cisco Systems
 - Juniper Networks
 - Alcatel
 - Hewlett Packard
- 4) Communications Technology Service Providers, including:
 - SBC/at&t
 - Comcast
 - IPNetworks
 - Sprint/Nextel
 - Broadwing
 - The Dandin Group
 - Photisis Consulting
- 5) Communications Standards Bodies, including:
 - The Metro Ethernet Forum (MEF)
 - Institute of Electrical & Electronics Engineers (IEEE)
- 6) Government and Non-profits, including:

Every telephone conversation happening in the U.S. right now could theoretically be carried across a single optical fiber the size of a hair on your head!

Most service provider backbones are now optical fiber, and service providers are extending fiber further into neighborhoods and to homes and businesses. Enterprises are increasingly deploying optical fiber in their networks to improve operations. Technicians with knowledge and skills in optical fiber networks are in ever increasing demand.

City College of San Francisco's Fiber Optic Technology course covers fundamental principles & application of fiber optic technology, in the classroom & in hands-on labs. Students learn:

- Fiber fabrication, splicing and termination
- Operations of lasers, LEDs, detectors and optical amplifiers
- Optical protocols, like FDDI, Gigabit Ethernet and SONET
- Use of optical test tools, like optical power meters & OTDRs
- Network design, testing, troubleshooting and management

Students get real world experience with City College's optical metro & campus networks.

This course prepares students for the Fiber Optic Association (FOA) Certification.

Voice over IP

(CNIT 215)

taught by CNIT instructor Carlos Colom is also fully enrolled.



Traditional voice communications systems use separate copper wiring, analog telephones and switched circuits. As high-speed Local Area Networks (LANs), fast computers, very high-speed optical fiber infrastructure and pervasive Internet Protocol (IP) networks have arrived, however, many enterprises and individuals are using systems and applications that convert voice communications to data packets and carry them over IP networks, like other application traffic.

VoIP is growing rapidly. City College of San Francisco, for example, has upgraded its telephone systems to VoIP, with voice traffic carried over local area networks and an optical fiber intercampus network.

People with knowledge and skills in VoIP technology and implementation are in high and ever-increasing demand!

City College of San Francisco's Voice Over IP Fundamentals (VoIP) course teaches students:

- VoIP technology, terminology, standards & protocols
- How to work with VoIP equipment & software
- How to set up & manage switches & routers for VoIP
- How to set up & manage VoIP Quality of Service (QoS)
- VoIP compression & signaling technologies
- VoIP system design & implementation
- An overview of multi-vendor VoIP systems in the marketplace

Students get real world experience with City College's VoIP systems and networks.



Advisory Panel - continued from page 3

- The City and County of San Francisco Department of Telecommunications and Information Services (DTIS)
- The National Association of Telecommunications Officers and Advisors (NATOA)
- The California Employment Development Department (EDD)
- The Information Technology Consortium (ITC)
- SeaKay
- The Institute for Women in Trades, Technology & Science
- The Saflund Institute

It is a national priority to provide quality training for advanced network and IT technicians, so all organizations who increasingly rely on those technologies benefit from the best and best managed network and IT systems possible. The Advisory Panel contributes to the success of that mission by contributing ideas, experiences, resources, information and efforts.