



Experiential learning spans pre-college through graduate programs at NJIT. Here undergraduate Angie Zaka (center) works with high school students Anu Apaddhyay (left) and Christina Moussa, all participants in Research Professor Lisa Simone's biomedical engineering project focused on hand-function rehabilitation.

# Real Experience and Real Knowledge for the Real World

## EXPERIENTIAL LEARNING ENHANCES EDUCATION ON MANY LEVELS

The NJIT students combining conventional classes with internships and co-op work at General Devices are benefiting from an educational experience that literally involves life and death. Based in Ridgefield, New Jersey, General Devices is at the leading edge of communications technology for emergency medical and public safety personnel. For example, as featured on National Public Radio, the company's ER-Link is the first operational EMS telemedicine system in the nation. It supports voice, video and data communication between medical first responders on the road in Tucson, Arizona, and physicians at the hospital to which they're transporting a person stricken by illness or an accident.

NJIT students have contributed to the design and production of these systems at General Devices for nearly three decades. Among the company's current staff members in Ridgefield are a dozen NJIT interns and co-ops. Curt Bashford '87, MS '95, now vice president, joined General Devices as an intern over 20 years ago.

### **An educational cornerstone**

Experiential learning is an educational cornerstone at NJIT, encompassing various other programs in addition to internships and co-op employment. Also notable are the Capstone projects that engage NJIT

students in numerous real-world challenges. Students can sample hands-on experiences in all branches of engineering, software development, architecture, basic research, marketing and other fields.

NJIT has partnerships with some 2,600 organizations, including small startups, large corporations, non-profit groups and government agencies. Among program sponsors and employers are Johnson & Johnson, New Jersey Transit, Schering-Plough, PSEG, Memorial Sloan-Kettering Cancer Center and Liberty Science Center.

### **Success made at NJIT: Co-ops and interns**

Michael Smith, president of General Devices and a member of NJIT's Career Development Services Advisory Board, says that his company's success is due in large measure to the NJIT interns and co-ops who have worked with him over the years, some of whom have attained full-time positions. As Smith puts it, "You could say that our success has been made at NJIT."

Companies like General Devices, engines of technical innovation and job creation in the U.S., need employees who can hit the ground running when they come aboard full-time. According to Smith, a co-op or intern definitely gives an employer a good idea as to whether that person would be a productive full-time fit.

Gregory Mass, NJIT's executive director for career development services, enthusiastically elaborates on how experiential learning adds value to education in the classroom and promotes professional development. "An outstanding academic record is no longer enough to obtain the most desirable positions when you enter the workplace," he says. "Employers seek graduates who are not only technologically proficient, but who also have developed communication and teamwork skills." There's also a significant advantage when it comes to paying for college. While not all interns are paid, co-op students earn a salary as well as academic credit.

### The Capstone perspective

Capstone projects call upon students to help develop solutions for real-world needs in many fields. For example, since its inception in 2002, the Capstone program initiated by University Senior Lecturer Osama Eljabiri in the College of Computing Sciences has involved more than 1,500 students in some 300 projects. Clients and sponsors have included CBS News, CIT, Honeywell, PSE&G, Saint Barnabas Health Care System and the U.S. Army, as well as smaller high-tech firms. Capstone students

have also joined NJIT research teams, and projects have been sponsored by the City of Newark, the New Jersey governor's office and the FBI.

Under Eljabiri's direction, the program has expanded to include a pre-college component — Connections: A Real World Education Program for High School Students. Talented young people from high schools across New Jersey participate in work-experience projects for companies, non-profit organizations and other groups under the guidance of industry experts, and NJIT faculty and students.

Recently, a Capstone team that included high school students worked on software for the "Global Microscope" at New Jersey's Liberty Science Center. This powerful projector allows visitors to view graphic depictions of atmospheric changes, tsunamis, global warming and other geophysical phenomena. (Visit [www.lsc.org](http://www.lsc.org) for more about the Global Microscope.) ■

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Visit *NJIT Career Development Services* at [www.njit.edu/CDS](http://www.njit.edu/CDS) for more information about internships, co-op employment and other experiential learning opportunities, as well as for information about career services available to alumni.

## A WEALTH OF BENEFITS

Over a thousand NJIT students gain the diverse, substantial benefits of experiential learning each semester, and the summer offers other opportunities. Computer engineering major Mohamad Alsafrjalani, for example, spent two summers in the 10-week BioMEMS Summer Institute at NJIT, helping to design a device that measures blood viscosity. The NSF-supported program is an intensive introduction to BioMEMS technology at the heart of microelectromechanical pumps and sensors increasingly important in medicine.

The co-op or intern experience also offers the benefit of learning if a particular type of work is really to one's liking. That's been the experience of Erika Taugher, star NJIT soccer player and mechanical engineering major in Albert Dorman Honors College. Taugher, who won a highly competitive Wall Street internship at JPMorgan Chase & Co., also spent a summer at Panasonic working on technical manuals.

"The Wall Street internship was so important because it helped me to channel my interests," Taugher says. "The internship at Panasonic was just as important because I learned that the work wasn't for me. It's easy to read job descriptions or shadow someone for a day and assume you want that job. But there's no way to really know until you try it." Taugher's internship at JPMorgan led to an offer of full-time employment in corporate finance with the firm.

Two internships at Schering-Plough were equally significant for another Albert Dorman student — Stephanie Monteiro, a chemical engineering major with a minor in math. "I experienced quite different sides of the pharmaceutical industry, research and management," she says. "I was also able to start building personal relationships with people who might be future colleagues in the industry." Some of the people Monteiro met as an intern may very well be colleagues in the near future. Nearing completion of her undergraduate degree, she has accepted an offer of full-time employment with Schering-Plough's Global Technical Services group.



Mohamad Alsafrjalani in NJIT's clean room