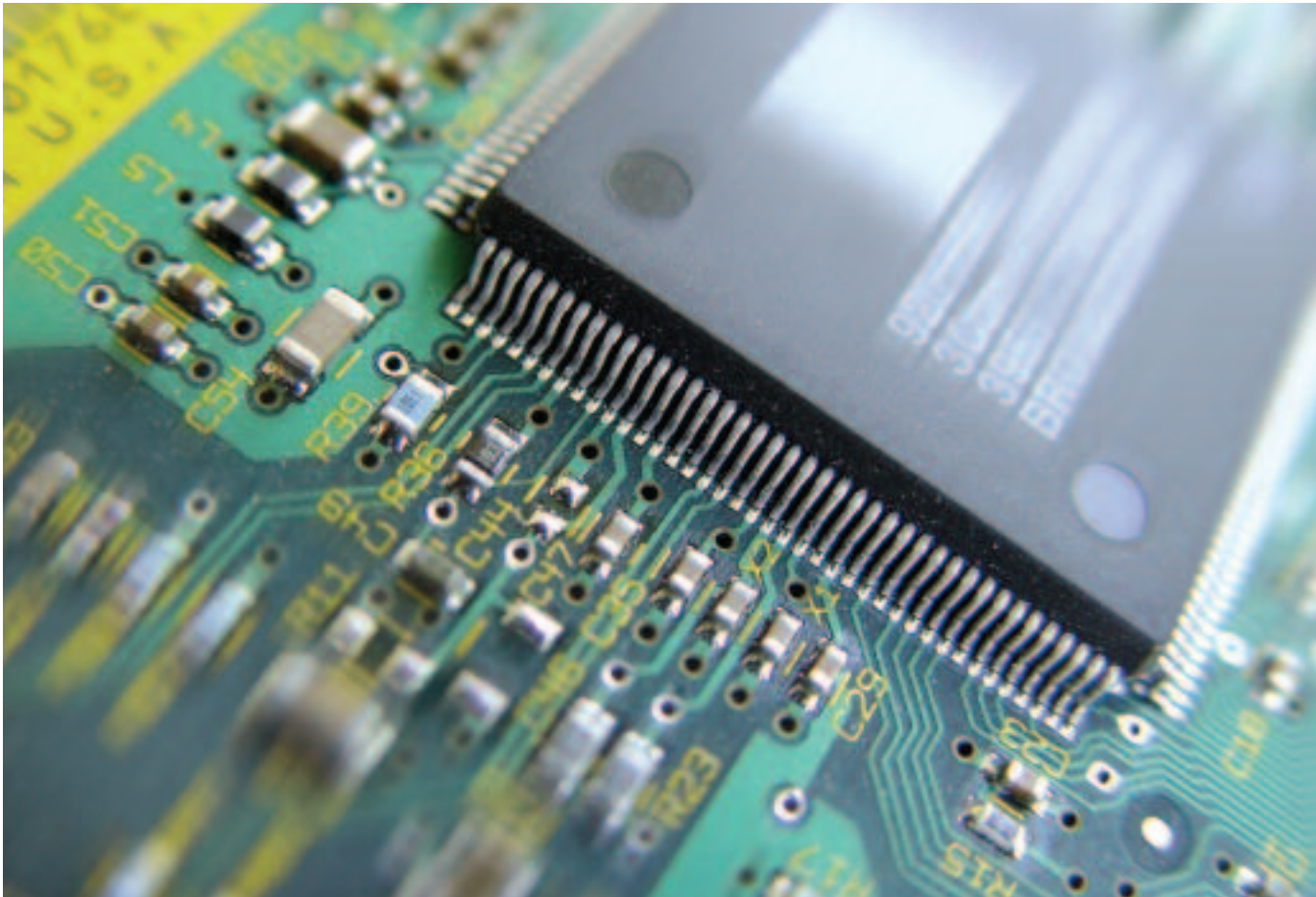


**NJIT**<sup>™</sup>

New Jersey's Science &  
Technology University

*THE EDGE IN KNOWLEDGE*

# The Master of Science in Computer Engineering



Department of Electrical and Computer Engineering

Newark College of Engineering

**New Jersey Institute of Technology**

## WHY PURSUE A MASTER'S IN COMPUTER ENGINEERING?

The rapid development of computer hardware and software in the last two decades has created a demand for engineers who are not only knowledgeable in both these areas, but who also understand their interaction. The specialized areas include computer architecture, embedded computer system design, computer interfacing, intelligent control systems, and computer communication and networks that are based squarely on this knowledge.

Computer industry is rapidly transforming from a predominantly manufacturing economy to a mixed manufacturing and service economy. Computer engineers are an integral part of this transformation. With the emergence of a large high technology industry base, this program provides opportunities for professionals in this sector of the economy. Several companies are directly involved in the development of computer components and systems, and many more are involved in the creation of computerized instrumentation, control systems and computer communications. Computer engineers have the skills required for these companies to succeed. Recent fast growing developments in computer communications and networks have created a new end market for Computer Engineers. The need for computer engineers is expected to increase dramatically in the future.

## WHY STUDY COMPUTER ENGINEERING AT NJIT?

NJIT's Department of Electrical and Computer Engineering is at the hub of New Jersey's technology enterprises. The educational and research programs have been evolved through interaction and growing partnership with companies including AT&T, Lucent Technologies-Bell Laboratories, IBM, Sarnoff, Sun Microsystems, PSE&G, Globix, Telcordia, and Mitre Corp. The department has nationally-recognized research programs in computer architecture and reconfigurable computing, wireless telecommunications, MEMS and nanotechnology, networking and Internet security, and generation of computing applications. The department has several state-of-the-art research facilities in such areas as reconfigurable and parallel computing, embedded systems and computer networks. It also has several collaborative research centers, including the Center for Communications and Signal Processing Research, Microelectronics Research Center, Electronic Imaging Center, and an NSF Industry-University Co-operative Research Center (IUCRC) in Information Assurance. These research centers also involve faculty from other departments at NJIT as well as universities in New Jersey and the nation.

## WHO TEACHES THE COURSES?

In addition to more than 36 full-time faculty members, students are taught by adjunct professors from industry that offer specialty courses in their areas of expertise and can also serve on thesis and dissertation committees.

## IS PART TIME STUDY AVAILABLE?

Evening and weekend courses accommodate the working professional, who may pursue the degree part time.

## WHAT WILL YOU LEARN?

Focus on interdisciplinary course work and research provides students enrolled in graduate studies in computer engineering programs with an advanced background in both the hardware and software aspects of computing. The master's program prepares computer engineers to successfully design integrated systems involving both hardware and software understanding the hardware-software design trade-offs inherent to computing today.

## WHAT AREAS OF SPECIALIZATION ARE AVAILABLE?

- **Microprocessor-Based Systems:** For students who want to design microprocessor based systems for applications including instrumentation, data acquisition and control systems, manufacturing automation and consumer electronics. It emphasizes microprocessor- and microcontroller-based system design and programming.
- **Computer Architecture and Systems:** For students who want to design advanced computer systems, including reconfigurable and parallel systems, embedded systems and distributed computing

systems. It emphasizes advanced computer architecture and embedded systems design.

- **Computer Networking:** For students who want to design and manage both the hardware and software aspects of computer communications and networks. It emphasizes computer network design, security and performance from both the hardware and software perspectives.
- **VLSI System Design:** For students who want to design VLSI circuits or interact with VLSI circuit designers. It emphasizes VLSI design principles and CAD tools for designing and testing VLSI circuits and chips.
- **Intelligent Systems:** For students who want to design and use intelligent systems in application areas such as machine vision systems, computer integrated manufacturing, industrial control and biomedical applications.

## DO STUDENTS HAVE OPPORTUNITIES FOR RESEARCH?

Students have the opportunity to work, one-on-one, with faculty researchers pursuing projects in cutting edge technologies at such state-of-the-art centers and labs as the Advanced Networking Laboratory; Center for Communications and Signal Processing Research; the Device and Material Characterization Laboratory, Laboratory for Integrated Nanostructures; Electronic Imaging Center, Real Time System Laboratory, and the Microelectronics Research Center. Faculty are involved in research in such areas as nanotechnology, optical biosensors, deep sub-micron CMOS device reliability, integrated nanostructures and nano-devices.

## FOR FURTHER INFORMATION

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## TO APPLY:

Office of Graduate Admissions,  
(973) 596-3300, or apply on-line at  
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