

# NJIT

New Jersey's Science &  
Technology University

*THE EDGE IN KNOWLEDGE*

## The Master of Science Program in Electrical Engineering



Department of Electrical and Computer Engineering

Newark College of Engineering

**New Jersey Institute of Technology**

**WHY PURSUE A MASTER'S IN ELECTRICAL ENGINEERING?** Electronics is one of the most thriving sectors in the American economy, particularly in New Jersey. According of the Bureau of Labor Statistics *Job Outlook Survey*, electrical engineering is the most sought degree among all engineering disciplines. The work of electrical engineers has become pervasive in our society, forming the foundation of computing and information technologies through the development of Very Large Scale Integrated circuits (VLSI Chips) that are used in computers, wireless communications and networking, cellular phones, industrial control systems, automobiles, satellite entertainment and communication systems, health-care and many other applications. With more than 500 electronics manufacturing facilities, New Jersey ranks among top five states in electronics enterprises and first in the nation in electronics R&D. New Jersey's electronics industry is projected to grow 30 to 40 percent a year. The defense industry also provides a large job market for electrical engineers as does the aviation industry.

**WHY STUDY ELECTRICAL ENGINEERING AT NJIT?** NJIT's Department of Electrical and Computer Engineering is at the hub of New Jersey's electronics 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 wireless telecommunications, MEMS and nanotechnology, networking and Internet security, and generation of computing applications. The department has several state-of-the art collaborative research centers including the Center for Communications and Signal Processing Research, Electronic Imaging Center, Microelectronics Research 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 serve on thesis and dissertation committees.

### **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 Computer Architecture and Parallel Processing Laboratory; the Device and Material Characterization Laboratory (Silicon Nano Electronics); Electronic Imaging Center, the Microelectronics Research Center; and the NSF IUCRC in Information Assurance. Ongoing research projects are well funded by federal funding agencies such as the National Science Foundation, US Army, Department of Defense, NIH, ONR, and leading industries. Students have opportunities to conduct thesis research with participating industry, hospitals, and university centers and departments.

### **IS FINANCIAL AID AVAILABLE?**

For MS students, limited assistantship (tuition remission and/or stipend) may be available on a competitive basis. International students may qualify for financial support after completing one semester of study at NJIT. However, international students with specialized skills may immediately qualify for hourly employment depending on the needs of the academic departments, administrative offices and different independent labs such as computer labs. Students can apply for on-campus hourly employment upon arrival.

### **IS PART TIME STUDY AVAILABLE?**

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

### **PROGRAM SUMMARY**

Degree Awarded: Master of Science in Electrical Engineering

Credits Required: 30

Program Objective: To offer students with backgrounds in electrical engineering or related areas unusual opportunities to specialize in advanced phases of electrical engineering

### **SUMMARY OF ADMISSIONS REQUIREMENTS**

BS in electrical engineering, the sciences or other closely-related area. A bridge program may be required of those who have undergraduate degrees in other than electrical engineering.

### **Core Courses (6 Credits):**

ECE 601 Linear Systems (3 credits)

ECE 673 Random Signal Analysis I (3 credits) or

ECE 620 Electromagnet Field Theory (3 credits)

**Electives:** To be selected by student in consultation with the program advisor.

### **FOCUS AREAS:**

Entering students must select an area of specialization during their first semester.

- Communications, Signal Processing and Microwave
- Computer Networking
- Computer Architecture and Systems
- Solid State, VLSI and Electro-optics Systems
- Intelligent Systems

### **FOR FURTHER INFORMATION, CONTACT:**

Dr. Durga Misra, MSEE Program Advisor  
Department of Electrical and Computer Engineering  
Electrical and Computer Engineering Center, Room 339  
Phone: 973-596-5739 Email: durgamadhab.misra@njit.edu  
<http://ece.njit.edu>