

# ELECTRICAL *and* COMPUTER ENGINEERING

**Enrollment** Fall 2009

<b>Undergraduate Electrical Engineering Students</b>	<b>605</b>	<b>Graduate Students</b>	<b>529</b>
<b>Undergraduate Computer Engineering Students</b>	<b>147</b>	Ph.D.	225
Average SAT Score	1246	Master's	304

**Quality Indicators**

<b>Total Faculty</b>	<b>73</b>	<b>U.S. News &amp; World Report Rankings</b>	Endowed Chair Holders	6
Professors	33	Rankings Among Public Institutions	Endowed Professorship Holders	10
Associate Professors	12	Electrical Engineering	National Academy of Engineering Members	2
Assistant Professors	24	Electrical Engineering		
Non-tenured/Non-tenure Track	4	Computer Engineering		

**Centers and Laboratories**

Analog and Mixed-Signal Center (TEES)	Genomic Signal Processing Laboratory	Power System Automation Laboratory
Control Engineering Laboratory	Magnetic Resonance Systems Laboratory	Power System Control and Protection Laboratory
Digital Signal Processing Laboratory	Multimedia Laboratory	Semiconductor Laboratory Sensing, Imaging and Communications Systems Laboratory
Downed Conductor Test Facility	Multimedia Communication and Networking Laboratory	Sensing, Imaging and Communication Systems Laboratory
Electric Machines and Power Laboratory	NanoBio Systems Laboratory	Smoke Detector Test Facility
Electromagnetics and Microwave Laboratory	Nanofabrication Cleanroom Facility	Ultrasound Imaging Laboratory
Electronics Laboratory	Power Electronics Laboratory	VLSI Laboratory
Electro-optics Laboratory	Power Electronics and Motor Drives Laboratory	Wireless Communications Laboratory
Fuel Cell Power Systems Laboratory	Power Engineering Laboratory	
Functional Thin Film Laboratory	Power Quality Laboratory	

**Research Areas**

**Analog and Mixed Signals**

- Active and Passive Filter Design
- Biomedical Applications
- Broadband Communications
- Data Converters
- High-Speed Electronic Systems
- Integrated Circuit Design
- Low-Noise Front-End Electronics
- Low-Voltage Low-Power Electronics
- Millimeter-Wave Integrated System Design
- Power Management
- RF IC and System Design

**Biomedical Imaging and Genomic Signal Processing**

- Bioinformatics and Computational Biology
- BioMEMs and Lab-on-a Chip
- Biosensing and Bioanalysis Systems
- Dynamic Imaging, Thermal Imaging and Magnetic Resonance Microscopy
- Genomic Signal Processing
- Image Analysis Techniques and Algorithms
- Magnetic Resonance Imaging and Spectroscopy
- Morphological Analysis
- Optical Tomographic Imaging Techniques
- Sensor Arrays in Medical Imaging
- Ultrasound and Elasticity Imaging

**Computer Engineering**

- Computer Networks and Internet
- Computer Systems
- Digital VLSI Design and Test
- Electronic Design Automation

- Fault Tolerance, Security and Reliability
- Mobile Wireless Networking
- Multimedia Infrastructure
- Network Coding
- Network Security and Reliability
- Storage Systems

**Control Systems**

- Homomorphic Digital Filtering
- Linear Multivariable Control Systems
- Nonlinear Control Systems
- Robust Control and Adaptive Control

**Electric Power and Power Electronics**

- Alternative Energy Systems
- Condition Monitoring and Fault Diagnostics of Electric Machines
- DSP-Based Power Electronic Systems
- Dynamic Analysis
- Electric Ship Power and Power Electronics Systems
- Electromechanical Energy Storage Systems
- Monitoring, Control and Protection
- Novel Electric Motors and Generators for Special Applications
- Power Converters for Windmills and Hybrid Vehicles
- Power Electronics and Motor Drives
- Reliability Evaluation
- Substation Automation
- Switching Power Supplies

**Electromagnetics and Microwaves**

- Antennas
- CMOS RFIC and Systems
- Electromagnetic Theory
- Electromagnetic Wave Propagation

- Guided-Wave Structures
- Microstrip Antennas
- Microwave Solid-state Circuits and Devices
- Microwave Systems
- Millimeter-Wave Circuits
- Sensing and Imaging
- Surface Penetrating Radar

**Solid-state Electronics Photonics and Nano-Engineering**

- Fiber Optics Devices
- Functional Thin Film Processing
- Integrated Optics
- Micro Electromechanical System (MEMS)
- Nanolithography
- Nanotechnology
- Noise in Electronic Systems
- Optical Communication
- Optical Filters
- Quantum Optics

**Telecommunications and Signal Processing**

- Advanced Channel Coding Techniques
- Data Compression
- Digital Communications Systems
- Digital Signal Processing
- Estimation and Detection Theory
- Information Security
- Information Theory
- Multirate Signal Processing
- Sensor Networks
- Time-frequency Analysis
- Wireless Networks
- Wireless Systems