

# Electrical and Computer Engineering

## Graduate Programs

<http://www.eng.auburn.edu/elec/programs/graduate/>



SAMUEL GINN  
COLLEGE OF ENGINEERING

## Application

### *Application Deadlines*

- Fall International Applicants: February 1  
Domestic Applicants: July 1
- Spring International Applicants: August 1  
Domestic Applicants: October 1

### *Application Procedures*

- Fill out the on-line graduate application.  
<http://www.grad.auburn.edu/prospective.html>
- Have ETS send GRE (and TOEFL for international applicants) scores to Graduate School, Auburn University (code 1005).
- Send supporting materials (transcripts, three letters of recommendation, and statement of purpose) to:

Sandy Johnson  
Assistant for Graduate Program Officer  
Dept. of Electrical and Computer Engineering  
Auburn University, Auburn, AL 36849

### *GTA/GRA Application*

- For GTA, refer to the departmental website.  
<http://www.eng.auburn.edu/elec/programs/graduate/>
- For GRA, contact the faculty members in the areas of your interests.

### *Websites*

- Graduate School  
<http://www.grad.auburn.edu>
- Office of International Education  
<http://www.auburn.edu/academic/international/oie>

## Contacts

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Professor and Department Chair  
(334) 844-1830, [nelmsrm@eng.auburn.edu](mailto:nelmsrm@eng.auburn.edu)

Sandy Johnson  
Assistant for Graduate Program Officer  
(334) 844-1802, [ecegrad@eng.auburn.edu](mailto:ecegrad@eng.auburn.edu)  
(Inquiries should be sent to Sandy Johnson)

## Degree Options

- *Master of Electrical & Computer Engineering (M.E.E)* is a non-thesis masters degree option. The applicant should have a bachelor's degree in electrical engineering or its equivalent from an ABET-accredited institution.
- *Master of Science (M.S.)* requires a thesis and is for graduates of both engineering and non-engineering curricula. The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing.
- *Doctor of Philosophy (Ph.D.)* is a research degree and is not conferred merely upon fulfillment of technical requirements, but awarded in recognition of the ability to think and work independently, originally, and creatively in a chosen field. Applicants with a master's degree are preferred, but those with a bachelor's degree only, who have exceptional credentials, may be accepted.

## College of Engineering Fellowships

- *Dean's Fellowships*  
Doctoral candidates; \$32,000/year minimum renewable stipend plus tuition fellowship
- *College Fellowships*  
Master's or doctoral candidates; \$24,000/year minimum renewable stipend plus tuition fellowship
- *Departmental Fellowships*  
Master's or doctoral candidates; \$20,000/year minimum plus tuition fellowship
- *Tuition Fellowships*  
Full graduate school tuition; Available to students with graduate research/teaching assistantships, or COE fellowships
- All applicants are automatically considered.

## Research Areas

Biomedical Engineering, Control Systems, Digital Signal Processing and Communication, Digital Systems, Electromagnetic Modeling and Analysis, Image Processing, Microelectronics, Power Systems, Wireless Engineering

## Research Centers

- **Alabama Micro/Nano Science and Technology Center (AMNSTC):** investigating new concepts in microelectronics – multichip module design, fabrication and reliability, thin diamond film growth and characterization, silicon germanium bipolar transistor characterization, etc.  
<http://www.eng.auburn.edu/research/centers/amstc/>
- **Auburn University Magnetic Resonance Imaging Research Center (AUMRIRC):** conducting research in high field magnetic resonance imaging (MRI) for biomedical applications.  
<http://www.eng.auburn.edu/research/centers/mri/>
- **Center for Advanced Vehicle and Extreme Environment Electronics (CAVE<sup>3</sup>):** working with industry in developing and implementing new technologies for the packaging and manufacturing of electronics with special emphasis on the cost, harsh environment and reliability requirements of the vehicle industry.  
<http://www.cave.auburn.edu/>
- **Laboratory for Electronics Assembly and Packaging (LEAP):** providing state-of-the-art electronics manufacturing, packaging, characterization, reliability testing, and failure analysis capability enabling world-class research in electronics assembly and packaging.  
<http://www.eng.auburn.edu/department/ee/leap/>
- **Wireless Engineering Research and Education Center (WEREC):** designing hardware and software for wireless devices and networks; covering the broad areas of integrated circuit design and test, signal processing and communications, networking, system security and applications.  
<http://www.eng.auburn.edu/research/centers/wireless/>

## Faculty

- **Nelms, Mark** (Virginia Tech '87) – Department Chair, Power electronics, Energy conversion, Power Systems
- **Agrawal, Prathima** (Southern California '77) – Mobile and wireless networking, Computer architecture, Computer-aided design and test of integrated circuits, Fault-tolerant computing
- **Agrawal, Vishwani** (Illinois, Urbana-Champaign '71) – VLSI testing, Low-power design of VLSI circuits
- **Baginski, Michael** (Penn. State '84) – EMC Analysis, Transient electrical, thermal, and mechanical behavior of materials, Multilayer dielectric structures, FEM/FEA of electromagnetics related to lighting
- **Baginski, Thomas** (Penn State '84) – Applications of microelectronics to energetic materials
- **Dai, Foster** (Penn State '98, Auburn '97) – Wireless and fiber communication theory, Automatic built-in self-test for analog and mixed signal systems, Frequency synthesizer IC designs, High-speed RFIC designs, VLSI circuits
- **Dean, Robert** (Auburn '06) – MEMS devices and systems, Microfabrication, Advanced packaging, Mixed signal electronics for MEMS based systems, Sensors and actuators
- **Denney, Thomas** (Johns Hopkins '94) – Magnetic resonance imaging (MRI), Cardiovascular MRI, Medical image analysis, Deformable motion
- **Deshpande, Gopikrishna** (Georgia Tech '07) – Signal and image processing, Functional magnetic resonance imaging (fMRI), Network modeling of brain function, Real-time brain state classification using machine learning
- **Halpin, Mark** (Auburn '93) – Electric power systems
- **Hamilton, Michael** (Michigan '05) – Nanotechnology for electronics and photonics, Nano/micro systems, Packaging and integration technologies
- **Hung, John** (Illinois Urbana-Champaign '89) – Nonlinear systems and control
- **Irwin, David** (Tennessee '67) – Circuit analysis and design, Network security
- **Johnson, Wayne** (Auburn '87) – Extreme environment electronics, Advanced packaging, High reliability electronics, Electronics manufacturing
- **Kirkici, Hulya** (Polytechnic '90) – Pulse power, Optical spectroscopic measurement techniques, Lasers and high power/efficiency light sources, Dielectric breakdown, Electrical insulation, Power conditioning, Surface flashover

- **Lee, Soo-Young** (Texas '87) – Parallel computing, 2-D and 3-D nanofabrication, Proximity effect correction in electron-beam lithography
- **Mao, Shiwen** (Polytechnic '04) – Wireless networks and communications, Multimedia communications, Cross-layer optimization and design, Performance modeling and analysis
- **Nelson, Victor** (Ohio State '78) – Embedded systems design, VLSI design and test, Microprocessor applications, Computer-aided design and test of digital systems
- **Niu, Guofu** (Fudan '97) – SiGe technology, RF CMOS, Radiation effects of microelectronics, Noise and linearity in RF devices and circuits, TCAD, Device modeling
- **Reeves, Stanley** (Georgia Tech '90) – Image and signal restoration, Magnetic resonance imaging, Image acquisition, Color and multispectral imaging, MR spectroscopic imaging
- **Riggs, Lloyd** (Auburn '85) – Detection of pathogens using magnetostriction oscillators, Mine and unexploded ordnance detection/discrimination using electromagnetic induction methods
- **Roppel, Thaddeus** (Michigan State '86) – Sensor fusion, MEMS, Neural network applications to sensor systems
- **Singh, Adit** (Virginia Tech '82) – Integrate circuit testing, Microelectronic reliability, Nanoelectronics, VLSI design
- **Stroud, Charles** (Illinois Chicago '91) – VLSI design and testing including SoCs, FPGAs and CPLDs, Built-In Self-Test (BIST), Design for Testability (DFT)
- **Tugnait, Jitendra** (Illinois Urbana-Champaign '78) – Multisensor multitarget tracking, System identification and stochastic system analysis, Wireless and wireline communication, Statistical signal processing
- **Wang, Shumin** (Ohio State '03) – Electromagnetics, antennas and microwave circuitry, Magnetic resonance imaging, Bio-medical imaging and therapeutic devices
- **Wentworth, Stuart** (Texas '90) – Microwave circuit and interconnect modeling, High frequency packaging and measurement, Acoustic wave sensors, Radio frequency identification tags
- **Wilamowski, Bogdan** (Gdansk Tech '70) – Solid-state electronics, Mixed signal and analog signal processing, Computational intelligence and soft computing, CAD development, Network programming
- **Wu, Chwan-Hwa “John”** (Polytechnic '87) – Network security, Wireless security, Information security, Computer networks