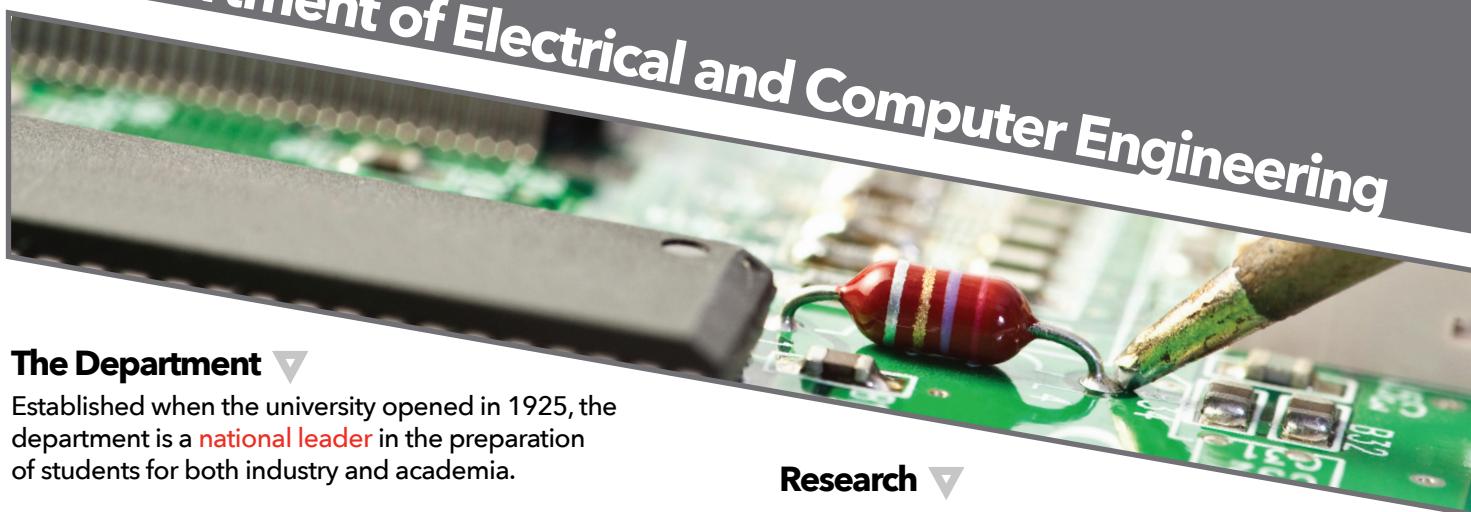


Department of Electrical and Computer Engineering



The Department ▼

Established when the university opened in 1925, the department is a **national leader** in the preparation of students for both industry and academia.

With **more than 50 years** of implementation, the **project design laboratories** for undergraduates developed at Texas Tech have helped students find solutions to problems in situations "**as close to real-life as possible**," mimicking true **design risk**, showing **complexity** of environments, and giving students exposure to **real industry problems** while still in the classroom and laboratory.

For graduate students, close contact with faculty members who are international experts in impactful fields from **pulsed power and power electronics** to **nanophotonics** regularly fosters scholarly publications and research breakthroughs.



The department is moving forward in key areas of technological advancement, including **smart grids** and **grid integration** for **renewable** energy, silicon carbide and **wide bandgap materials** for power electronics and nanophotonics, and **biomedical engineering** applications.

By the Numbers ▼

Enrollments (Fall 2014):

Undergraduate.....	256
Estimated Qualifying Foundational Students.....	128
Master's.....	164
Doctoral.....	59

Faculty Members:..... 24

Endowed Chairs, Professors, and Fellows:..... 5

Research ▼

Led by faculty members who are leaders in their fields of study, graduate and undergraduate students are exposed to the **latest advances** and perform research in the following areas:

- ▶ Cyber-Physical Systems
- ▶ Image Processing and Wireless Communications
- ▶ Medical Electronics and Medical Image Processing
- ▶ Microelectronics
- ▶ Nanophotonics/Nanotechnology
- ▶ Pulsed Power and Power Electronics
- ▶ Smart Electric Power Grids
- ▶ Sustainable Energy Systems

Areas of Study ▼


- ▶ Bachelor of Science in Electrical Engineering
- ▶ Bachelor of Science in Computer Engineering
- ▶ Master of Science in Electrical Engineering
- ▶ Doctor of Philosophy in Electrical Engineering



Contacts ▼

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Department of Electrical and Computer Engineering

Faculty Research Specializations ▼

Dr. Mary Baker
Professor

Biomedical Signal Processing, Neuroimaging and Cognition, Medical Image Processing



Dr. Changzhi Li
Associate Professor

Doppler radar for biomedical and structural health monitoring, CMOS RF and analog circuits, Microwave circuits

Dr. Stephen Bayne
Associate Professor

Power Electronics for Hybrid Electric Vehicles, Design of Compact Power Electronics Converters, Evaluation of Power Devices for Power Electronics & Pulse Power Applications



Dr. Donald Lie
Keh-Shew Lu Regents Chair and Professor

Low-Power RF/Analog Integrated Circuits & System-on-a-Chip (SoC) Design and Test, Interdisciplinary Research on Medical Electronics, Biosensors, & Biosignal Processing

Dr. Ayrton Bernussi
Associate Professor

Propagation Losses in Silica-on-Silicon Waveguides, High-Power Laser Diodes, Lossless Propagation in Plasmon-Related Waveguides, Time Resolved Luminescence of Semiconductors, Silicon-on-Silica Nanodevices



Dr. Jingyu Lin

Horn Professor and Whitacre Chair
III-Nitride Semiconductors (BN, AlN, GaN, InN & AlInGaN), Radiation sensors, MOCVD Growth, Solid-State Lighting, Energy-Conversion Devices

Dr. Tim Dallas
Professor

Microelectromechanical Systems (MEMS), Nanocoatings, Wireless Medical Devices



Dr. John Mankowski, P.E.

Associate Professor
Electric Space Propulsion, Liquid & Gas Discharge Physics, Railgun Technology, Explosive Pulsed Power, High-Power Microwave Generation

Dr. James Dickens, P.E.

Charles Bates Thornton Professor

Grounding & Shielding, Explosive Pulsed Power, High-Power Microwaves, Electric Space Propulsion, Aerospace Electronics



Dr. Sunanda Mitra

Horn Professor
Image Processing, Pattern Recognition, Medical Imaging, Compression

Dr. Zhaoyang Fan

Associate Professor

GaN & ZnO-based Electronic and Optoelectronic Devices & Sensors, Thin-Film & Nanostructure Materials



Dr. Andreas Neuber, P.E.

Horn Professor and AT&T Professor
HV Electric Breakdown, Gaseous Electronics, Materials Under Shock, High-Power Microwaves, Pulsed Power Technology

Dr. Richard Gale, P.E.

Professor

Micro-Electro-Mechanical-Systems Design, Nanowires



Dr. Sergey Nikishin

Professor
Semiconductors (Si, Ge, III-V, chalcopyrites) and dielectrics, LED and laser diodes, photodetectors, solar cells, and FETs, Epitaxial growth and semiconductor processing, Design and fabrication of nano- and micro- electronic and photonic devices

Dr. Michael Giesselmann, P.E.

Department Chair and Professor

MW-Level Motor Drives, Compact Pulsed Power, Renewable Energy, Power Electronics, Pulsed Power, Power Systems



Dr. Brian Nutter, P.E.

Associate Professor
Biomedical Imaging, Embedded Systems

Dr. Miao He

Assistant Professor

Cyber-physical power systems, Monitoring and data fusion towards secure smart grids, Power system operations with high penetration of renewable resources, Online dynamic security assessment of power systems using PMU measurements



Dr. Ranadip Pal

Associate Professor
Genomic Signal Processing, Stochastic Modeling & Control, Computational Biology, Image Processing

Dr. Hongxing Jiang

Horn Professor and Whitacre Chair

III-Nitride Semiconductors (BN, AlN, GaN, InN & AlInGaN), Radiation sensors, MOCVD Growth, Micro-Size Emitter Arrays, Solid-State Lighting, Energy-Conversion Devices



Dr. Vittal Rao

Professor
Electrical Energy Smart Grid Technologies, Smart Structural Systems, Tera-Hertz Technologies, Cyber Systems, Robust Control Systems, Data Fusion & Mining

Dr. Ravindra Joshi

Professor

Pulsed Power and High Power Microwaves, High Field Transport and Semiconductor Modeling, Electrophysics, Bio-electrics



Dr. Mohammed Saed

Associate Professor
Microwaves, Antennae

Dr. Tanja Karp

Associate Professor

Multirate Signal Processing, Multicarrier Communications, STEM, Engineering Education



Dr. Hamed Sari-Sarraf, P.E.

Professor
Image Processing, Pattern Recognition

Open Faculty Positions

3

Computer Engineering
Nanophotonics
Pulsed Power
Smart Grids