SMU | LYLE
SCHOOL OF ENGINEERING

To repair spinal damage, a surgeon inserts microelectronic probes that use terahertz frequencies for imaging and wireless control, and which are powered by the patients nervous system.

To improve its distance learning program, a college enhances its computer-based system with 3D imaging, 360-degree audio, and haptic interfaces, placing students in immersive virtual classrooms.

To meet the energy needs of the developing world, an engineering group develops a low-cost nuclear reactor that uses the abundant element thorium to breed safe, short-lived fissile fuel.

We live in a world increasingly reliant on electronic systems of ever-expanding capability. A world that, at the same time, must develop clean, sustainable ways to generate the electricity these innumerable devices require—as well as a smarter, more robust delivery system. It's a world that will be powered by engineering leaders excited by the advanced knowledge and hands-on experience provided by the master's in electrical engineering program at SMU-Lyle.

FIND US **HERE**

P.O. Box 750335 Dallas, Texas 75275
EngineeringLeaders@SMU.edu | lyle.smu.edu
214-768-2002

MASTER OF SCIENCE | ELECTRICAL ENGINEERING

POWER TRANSFORMERS

Switch Mode

Once concerned primarily with power generation and distribution, electrical engineering today is a far-ranging field that encompasses the application of electrical, electronic, and photonics technology to medicine, communication, information systems, education, manufacturing ... virtually every sphere of human activity. This is reflected in the design of our master's degree program, which offers students the opportunity to explore advanced topics in signal processing, computer engineering, optics, electromagnetics, and microelectronics. Specific topics include digital image processing, artificial neural networks, VLSI design, microwave electronics, and semiconductor lasers. Students emerge with the knowledge needed to advance their careers in this rapidly expanding field of engineering or to prepare for the future pursuit of their doctoral degree.

Peak Output

The master's in electrical engineering curriculum at SMU-Lyle is presented by an exceptionally qualified faculty whose own research projects—in photonics, cognitive wireless networks, statistical signal processing, intelligent systems, and more—touch many vital aspects of electrical engineering's future. Courses are offered in small classes that provide ample opportunity for lively discussion and productive collaboration. Lab work in instructional and research facilities provides a focus on real-world problems and applications of relevance not only to progressing students but also to the many working engineers who participate in this program.

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ACADEMIC **PROGRAM**

Requirements include the completion of ten graduate level courses (30 CH), or the completion of eight courses (24 CH) and a thesis (6 CH).

Communications and Networking

Analog and Digital Communications
Communication and Information Systems
Cryptography and Data Security
Detection and Estimation Theory
Error Control Coding
Information Theory
Performance Modeling and Evaluation of Computer Networks
Random Processes in Engineering

Signal Processing and Control

Analog and Digital Control Systems
Analog and Digital Filter Design
Digital Image Processing
Digital Signal Processing Architectures
Digital Speech Processing
Fundamentals of Computer Vision
Statistical Pattern Recognition

Computer Engineering

Biomedical Instrumentation
CAE Tools for Structured Digital Design
Digital Computer Design
Systems Analysis
Digital Systems Design
Microcontroller Architecture and Interfacing
Mobile Phone Embedded Design
Semiconductor Devices and Circuits
VLSI Design and Lab

Electromagnetics

Advanced Electromagnetic Theory
Antennas and Radiowave Propagation for Personal Communications
Electromagnetics: Guided Waves
Electromagnetics: Radiation and Antennas
Microwave Electronics
Numerical Techniques in Electromagnetics

Semiconductors, Materials and Photonics

Compound Semiconductor Devices and Processing
Introduction to MEMS and Devices
Introduction to Semiconductors
Semiconductor Devices and Circuits
Semiconductor Devices and Fabrication
Semiconductors Lasers
Lasers and Optics

A minimum of four courses must be taken in one of the tracks listed above. The remaining four courses may be taken from different tracks. At least two of the EE courses (6 CH) must be at the 8000 level. EETS courses do not count toward this requirement.

Students may also take two courses from graduate offerings in EE, EETS, ME, CSE, ENCE, EMIS, Math, Physics, Statistics, Biology, Chemistry, Geological Sciences, and Business with adviser approval.