To make wind power cost competitive, a government agency challenges manufacturers to develop more efficient, lower-cost turbine generators.

To reduce health costs, a biotech company introduces a lab on a chip that constantly monitors a wide range of indicators.

To profitably produce a mass-market electric car, an automaker installs robots with microscopically precise vision systems that enable them to perform with greater speed and precision.

Structures. Transportation. Medicine. Manufacturing. In a wide range of industries, companies are increasingly in need of engineers who can take technology to the next level, who can transform ideas into hardware, into machines and devices of unprecedented capability, into tools and systems that enable their manufacture, and into imaginative organizations that create high-value jobs at home. This is the opportunity behind the master’s in mechanical engineering at SMU-Lyle.

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214-768-2002
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).

Design and Dynamic Systems and Controls
Frequency Domain Methods in Linear Control Systems
Intermediate Dynamics
Linear System Analysis
Nonlinear Control
Optimal and Robust Control
Vehicle Dynamics
Vibrations

Mechanics and Manufacturing
Advanced Mechanical Behavior of Materials
Continuum Mechanics
Finite Element Methods in Structural and Continuum Mechanics
Introduction to Solid Mechanics
Introduction to Structural Dynamics
Matrix Structural Analysis
Nontraditional Manufacturing Processes
Optics Laser-Assisted Manufacturing
Theory of Elasticity

Thermal and Fluid Sciences
Advanced Thermodynamics
Convection Heat Transfer
Heat Transfer in Biomedical Sciences
Intermediate Fluid Dynamics
Intermediate Heat Transfer
Introduction to Computational Fluid Dynamics
Transport Phenomena in Porous Media

Thesis

SOLID MECHANICS

Mechanical engineering is inseparable from a modern world. And as new challenges arise in this world, so grows the need for engineering leaders with the technical knowledge to lead organizations—in a wide range of industries—to new technological solutions. This is the focus of our master’s degree program. In this 30-hour sequence, students explore advanced developments in mechanical, thermal, and fluid sciences; dynamic systems and controls, including such cutting-edge topics as microelectromechanical systems (MEMS); and computer-integrated manufacturing. Qualified students are also encouraged to participate in faculty research projects. They emerge well-qualified for leadership in this essential field, as well as ideally positioned to further extend their studies toward a Ph.D. degree in mechanical engineering.

THERMO-FLUIDS

The master’s in mechanical engineering curriculum at SMU-Lyle is presented by a world class faculty whose own research projects—in biomechanics, flow visualization, rapid prototyping, transport in porous media, medical robotics, and more—touch every aspect of mechanical engineering’s future. Courses are offered in small classes to ensure optimal opportunities for strong mentoring, teamwork, and creativity. Our goal is to enable students to achieve their highest potential for career advancement.