The Program

Texas State’s College of Science & Engineering is committed to nurturing the talents of young scientists by immersing students in a robust curriculum and applied learning experiences in laboratory research, field study, and cutting edge technology.

Some of the key characteristics of the Department of Engineering Technology include experiential learning (learning by doing), industry-relevant curriculum, a focus on industrial internships, and a state-of-the-art facility.

Engineering Technology is a very hands-on program. There is a good balance between theory and practice, as well as the opportunity to experience a wide diversity of manufacturing processes. The well-equipped foundry lab is one of the top five in the nation.

Students earn a BST in Engineering Technology, with concentrations in any of the following areas: Mechanical Engineering Technology, Manufacturing Technology, Environmental Technology, Electrical Technology, and Civil Engineering Technology.

The Curriculum

Because Texas State University is the only school in Texas that has a foundry program (and the only FEF school in Texas), focusing on metalcasting is a high priority – it is one of the three fundamental processes that are taught.

For the Mechanical Engineering Technology and Manufacturing Engineering Technology concentrations both Materials Engineering and Manufacturing Processes II are required courses. Mfg Processes II covers the basics of casting and includes a lab. Mats Engineering focuses on structure and properties of materials with a lab; Industrial Safety is a required course for all concentrations. Other classes that are offered include Foundry and Heat Treatment (lab) – which is a requirement for Manufacturing Engineering Technology, Facilities Planning, and Quality Assurance.

Texas State trains managers, not technicians. Students graduate with the skills to run a production facility, they are qualified to be a manager at a manufacturing facility. Texas State students are knowledgeable about manufacturing processes, have experience with assimilation tools, know how to work with computers to design castings, and are familiar what it takes to manage a facility. Students graduate with a wide range of experiences and knowledge.

The Facilities

The facilities at Texas State include a 2300 square foot foundry, a 1900 square foot material testing and analysis area, as well as a separate machine shop, machining lab, and fabrication and assembly lab. The foundry houses a 300 lb and 100 lb tilt induction furnace for ferrous materials and a 70 lb swing induction furnace for non-ferrous materials.

Additional equipment that the students have access to includes heat treatment furnaces, green sand testing equipment, tensile testing equipment, a spectrometer, metallographic polishers, and an optical microscope.
The Professor

Luis Trueba accepted the position of Assistant Professor in the Department of Engineering Technology at Texas State in the fall of 2019; he also took over the FEF Key Professor duties. Luis is a former FEF student graduating from Missouri Univ. of Science & Technology in 2001. He also served as the FEF Key Professor at Trine University from 2001 to 2005.

Luis can be reached at l.trueba@txstate.edu. The FEF Key School Contact for Texas State University is Johnny Hill who can be reached at jhill@martinsprocket.com.

The Students

Processes and experiences that are available to the students are:

- Molding: Green Sand, Chemically Bonded, and Lost Foam
- Metals: Aluminum, Iron, and Steel
- Core Making, Pattern Making, 3D Printed Patterns
- Processes: Machining, Heat Treating, Metallography, Mechanical Testing

Texas State students are able to visit local metalcasting companies throughout the year, which gives them the opportunity to see the theory that they are learning put into action. They also host open foundry days allowing them to share the importance of metalcasting with other students on campus as well as individuals from the community. Many of their senior design projects are as a result of companies coming to the school asking them to work on a real-world problem or possibility. The students are in involved from the conceptual design through all of the steps to the fabrication of the product.

Over the past four years, 11 FEF registered students have taken a job in metalcasting or related industry, and 7 students have participated in internships and/or co-ops in metalcasting or related industry in the past two years.