In 1949, Tennessee Tech’s School of Engineering was one of its five core “schools”. In 1965 it became the College of Engineering. The mission of the College is “to graduate innovative engineers who solve technological challenges to meet societal needs.”

Within the College of Engineering is the Department of Manufacturing & Engineering Technology which strives to keep the curriculum up-to-date, provide well-rounded technical-managerial education based education, and incorporate new technological developments as they occur.

By supplying students with the technical, operational, and managerial education, Manufacturing & Engineering Technology meets the needs of the manufacturing and automotive industries. Most of the MET graduates receive multiple job offers by the time of graduation and traditionally, those graduates successfully move through the ranks in industry to top leadership positions.

Students graduate with a BS in Engineering Technology.

The study of metalcasting is a high priority and key focus that is woven throughout the entire degree program at Tennessee Tech. Three required courses provide the students with extensive book learning and hands-on experience in the casting process: Intro to Manufacturing, Principles of Metalcasting, and Applied Physical Metallurgy. All three of these courses also include labs to aid in the learning process. Advanced Foundry Technology is an elective lab course that is available for the students as well.

Because of the heavy metalcasting focus, students find positions after graduation as process engineers, manufacturing engineers, tooling engineers, and supervisors as well as positions in the area of quality.

Not only does Tennessee Tech have the only educational foundry in the state of Tennessee, the foundry includes real world equipment that the students learn about and experience first-hand. In the foundry, you will find: electric resistance, coreless induction and gas fired furnaces, a fully functional sand lab, green sand and no bake capabilities, a pattern shop, and shot blast equipment.

You can view our youtube video to get an idea of what goes on in the Tennessee Tech Foundry - https://youtu.be/V5-I2zCccUp.

Fred Vondra has been a professor at Tennessee Tech since 1997. He received his BS in Manufacturing Engineering and his MS in Industrial Management at the University of Wisconsin-Stout. He then attended the University of Northern Iowa to earn his Doctorate in Industrial Technology. Prior to accepting his current position at Tennessee Tech, Fred spent seven years at JI Case Foundry in Racine, Wisconsin. He was also instrumental in getting the foundry started at Northern Iowa. Fred took over the FEF Key Professor duties in 1999 and was presented with the FEF/AFS Distinguished Professor Award in 2006.

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The Manufacturing & Engineering Technology students at Tennessee Tech participate in a wide variety of extra-curricular activities. These range from AFS student chapter meetings to making STEM presentations and doing demos in the foundry for students as well as High School teachers. A very important activity is touring local industry foundries and shops. This gives the students a first-hand opportunity to make the connection between what they are learning in their classes and how that translates to the job. Students also network with industry representatives at the local AFS Chapter meetings and participate in many activities during engineering week on campus. The more the student is exposed to casting in real life, the more likely they are to choose metalcasting as their life’s work.

Processes and experiences that are available to the students at Tennessee Tech are:

- Molding: Green Sand, Lost Foam, No-bake and shell core capability
- Metals: Aluminum, Copper Base, Iron, and Magnesium
- Core Making, Pattern Making, 3D Printed Patterns, and Casting Simulation
- Processes: Machining, Forging, Mechanical Testing, Metallography, NDT and Metrology

Over the past four years, 4 FEF registered students have taken a job in metalcasting or related industry.