The Program

The mission of Pittsburg State’s College of Technology is to be the center for excellence in technology for the state of Kansas. The close industrial ties lead to outstanding opportunities for co-op and internship work while students are enrolled and an exceptional placement record for graduates.

The College provides a process-focused education for their students. Upon completion of this program, the students understand all the processes involved in making a good metal casting – from part design & simulation to gating & feeding to pattern design to mold process selection to alloy selection and on to casting cleaning – the students are well-rounded and well-versed.

All casting processes are covered with specialization in investment casting. Real-world industry equipment helps to enhance the overall experience of the student.

Students graduate with a BS in either Manufacturing Engineering Technology or Mechanical Engineering Technology.

The Curriculum

Whether a student chooses Manufacturing Engineering Tech or Mechanical Engineering Tech, metalcasting is a focus – Principles of Metalcasting is a 5 credit-hour course which includes lab experience – this class is a requirement for the Manufacturing track and an elective for the Mechanical track. Other classes include: Casting Design & Simulation which is based around MAGMA and, if the student chooses to do so, they can receive a MAGMA student level certification; Heat Treatment & Metallurgy is offered which also includes lab work.

Both degrees are accredited by the Engineering Technology Accreditation Commission of ABET.

The Facilities

The focus of the foundry lab is to provide students with a hands-on experience. Students will be exposed to mold making, core making and pouring castings in a well-equipped modern foundry. Some of the equipment that they will learn to use are: a 125Kw melting furnace; a steam autoclave and burn-off furnace for investment casting; a 150 lb/min continuous mixer; and a 125 ton wax injection press. The program has a strong partnership with the Investment Casting Institute and a focus on that process.

The Professor

Russ Rosmait received his BS in Industrial Education and his MS in Vocational Education from the University of Wisconsin-Stout; he received his Doctor of Education from Oklahoma State University. Russ worked as the Assistant Director of Education for the Cast Metals Institute at AFS following graduation. He then accepted a position at Marathon Electric in Wisconsin as a Foundry Process Engineer. In 1987, he began his teaching career at Pittsburg State. He has spent several summers as a NASA summer faculty fellow at the engineering cost center and for one year worked at the metallurgy and research development lab.
Russ is a Past Director of the Investment Casting Institute (ICI) and is currently serving as the Academic Advisor to ICI. He is currently on the AFS Board of Directors and was presented with the FEF/AFS Distinguished Professor Award in 1998.

Russ can be reached at rrosmait@pittstate.edu. The FEF Key School Contact for Pitt State is Steve Sikorski who can be reached at s.sikorski@magmasoft.com.

**The Students**

Processes and experiences that are available to the students are:

- **Molding:** Green Sand, Permanent Mold, Investment Casting, Lost Foam, and Chemically Bonded Sand
- **Metals:** Aluminum, Copper Base, Iron, and Steel
- **Core Making** (shell-hot box, cold box & no bake), Pattern Making, and 3D Printed Patterns
- **Processes:** Heat Treating, Machining, Metallography, Mechanical Testing, Welding, NDT, and Simulation (Magma)

Pittsburg State students have many opportunities to participate in competitions, community service, and foundry tours. In the past several years, students have competed in the Wisconsin Regional casting competition, the AFS national casting competition, NASA rover challenge, and SAE Baja. Pittsburg State is the host of the annual ICI Investment Casting Certification Program as well as the “Gorilla Games” which is a STEM event and “Gorilla” Girl Scouts which is an open foundry event. The students also have opportunities to network with industry professionals at regional and national conferences and their local AFS Chapter meetings.

Over the past four years, 19 FEF registered students have taken a job in metalcasting or related industry, and 12 students have participated in internships and/or co-ops in metalcasting or related industry in the past two years.