



Preparing our Future Engineers and Technologists

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FEF Key Professor
Penn State University

Universities are large and complex, but don't be afraid to reach out and establish an on-going relationship



Penn State University

- 97,000 students 6,800 faculty
- \$6.8B operating budget
- \$21,00/\$38,000 tuition/yr
- #1 rated university by recruiters WSJ



College of Engineering

- 13,000 engineering students
- 420 faculty
- 20 engineering programs
- 30 research centers, \$133M/yr research
- 80,000 Penn State engineering alumni



Metalcasting Program

- FEF Key Professor

FEF programs are a great point of contact



Penn State Metalcasting

- 5 faculty/staff
- 50 AFS student chapter members
- Fully equipped metalcasting lab for teaching and research
- Support laboratories
- 25 students/yr have metalcasting internships/co-ops



It's all about the students (our 'product' and your future employees)



Undergraduate

- Industrial & Manufacturing Eng.
- Mechanical Engineering
- Material Science & Engineering

Graduate

- Industrial and Manufacturing Eng.
- Mechanical Engineering
- Civil & Environmental Engineering

Participation

■ On-site

- Monthly AFS Meetings – 20/mon
- Metalcasting Job Fair – 150/yr
- AFS Banquets – 80/yr

■ Off-Site

- AFS Chapter Meetings – 15/yr
- Plant Tours – 35/yr
- Internships/Co-ops - 20/yr

Penn State
American Foundry Society (AFS)

Student Chapter

Fall 2019 STUDENT EVENT CALENDAR

EVENTS

- Wed Sept 4** **AFS Member Meeting**, food 5:30 pm FAME Lab
Lost Foam Foundry Night 6:00-8:30 pm FAME Lab
- Wed Oct 9** **AFS Meeting**, everyone welcome, food 5:30 pm FAME Lab
Lost Foam Foundry Night 6:00-8:30 pm FAME Lab
make your own castings; student experts will help
- Thurs Oct 17** **Job Fair & Networking Event, AFS Student Chapter Banquet**
3:30-5:00 pm Job Fair, Leonhard Lobby, all welcome
6:00 pm Reception & Banquet, Atherton Hotel
- Sat Oct 19** **AFS Tailgating Extravaganza PSU vs. Michigan**
Hosted by PSU Metalcasting Alumni and the FEF
- Wed Nov 6** **AFS Meeting**, everyone welcome, food 5:30 pm FAME Lab
Lost Foam Foundry Night 6:00-8:30 pm FAME Lab
make your own castings; student experts will help
- Nov 21-22** **Foundry Education Foundation Student Conference**
-Free student trip to downtown Chicago (by invitation)
-career event with more than 50 companies

Metalcasting Industry Scholarships for Penn State IE students

- 1) register at the FEF website www.fefoffice.org
- 2) one page resume to Dr. Voigt by Sept 10



Faculty Advisor: Dr. Voigt, Rm 344A rcv2@psu.edu



Find ways to enhance the student metalcasting experience at 'your university'



- **Make molds! Pour metal!**
- **Penn State AFS Chapter**
- **Conferences and local chapter meetings**
- **Interaction with industry**

- **Scholarships**
- **Internships, co-ops & full time positions**



Help to build upon the strengths of your university partner



Penn State Metalcasting - What do we do well

- Close relationship with the Pennsylvania metalcasting industry and metalcasting partners across the US for teaching & research
- Great Penn State Metalcasting Program traditions
 - Strong Metalcasting Advisory Committee
 - Student interaction with metalcasting and metalcasters
 - Effective student placement
- Strong lab-based and industry-based metalcasting research
- Train the next generation of metalcasting faculty members
 - Frank Peters, Univ of Iowa Charlie Monroe, UAB
 - Victor Okhuysen, Cal Poly-P Paul Lynch, Penn State – Behrend
 - Dika Handayani, Cal Poly-P Matt Sullivan – Thaddeus Stevens

We rely on industry support to help us to equip our laboratories



Metalcasting Lab

- 125 KW induction furnace
- Green sand system
 - batch muller, overhead sand delivery and sand return
- Jolt- squeeze & manual molding
- Batch no-bake mixer
- Lost foam and permanent molding laboratory scale casting systems
- Sand testing laboratory
- Software
 - SolidCast & FlowCast, Flow 3D
- Cooling curve analysis
- Etc.
- **3D sand/ceramic printer**

Support Capabilities (IE)

- CNC machining systems
- Comprehensive metrology
 - Contact & non-contact inspection systems
- Heat treatment, mechanical testing, welding, NDT
- Etc.
- **Non-contact dimensional inspection**
- **Vickers hardness tester**

Other Support Capabilities

- Comprehensive material characterization & testing facilities
- Cutting edge faculty & facilities in many areas

Support metalcasting research



Green Sand Technologies

DOE, F-N, EPA, industry consortium

High Strength Cast Steels

AFRL, ARO, foundry consortium

Weldable Higher Yield Strength Steels

DLA, SFSA, industry consortium

Imbedded Mold Sensors

America Makes consortium

Complex Core Assemblies

Benton Foundry

Machining of Cast Irons and Cast Steels

Applied Process, AFRL

Sand System Control – Ceramic Sands

PA, industry consortium

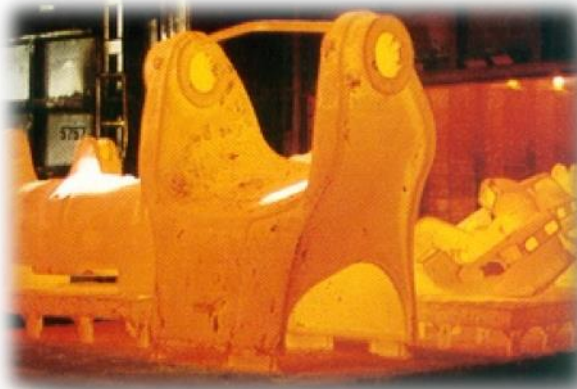
Gating Systems for 3D Printed Molds

PA, industry consortium

Printed Wax Patterns for IC

PA, industry consortium

Your project here!



You can't afford not to be involved. We can't afford not to have you involved



Pennsylvania

- Penn State Cast Metals Industrial Advisory Committee – 2/yr
- PA Foundry Association/Penn State Metalcasting Annual Conference in State College
- Penn State Metalcasting Job Fair – 2/yr
- Manage local foundry association scholarships for Penn State students
- Technical advice and limited consulting

Beyond Pennsylvania

- AFS Technical Committee Member 10-E, 5-I, 9-A, 4-N
- Editorial Board Member
 - International Cast Metals Journal
 - International Journal of Metalcasting
- Foundry organization research participation – 40 companies/yr
- Technical presentations - 10+/yr
- Technical advice and limited consulting

Successful Hiring



- Hire a summer intern (or two) each summer
- Polo shirts with your logo