



STEEL PROFESSOR GRANT

Year-End Report2023-2024

A year-end report is due on 30 June. Your final report will be posted to the AIST website for others to view and may be included, in whole or in part, in the AIST *Iron & Steel Technology* magazine. Prior to submitting your report:

- We request an “action” photo of the professor be submitted with your final report.

The grant funding covers costs associated with the following guidelines.

- Recipients may remain in the program for an indefinite period, as determined from time to time by the Board.
- Recipients may use the title, “AIST Foundation Steel Professor” as appropriate.
- Continue the momentum of the KDP JFA by fostering steel industry interest and AIST Foundation promotion at his or her university through “Steel Day” events, plant tours, research projects, etc.
- Recipients should encourage students to apply for AIST Foundation Scholarships and Internships. A target of five (5) qualified student applications from each university for the AIST Foundation Steel Intern Scholarship is desired. The professor securing the most qualified student applications over the target in the given year will receive an additional \$5,000.
- Encourage students to attend AIST programs such as AISTech, MS&T, training conferences and chapter meetings.
- Attend one UIRR meeting annually.
- Provide guidance to the KDP JFA selection committee and potential applicants as requested.
- Provide an annual report of steel-related activities for AIST promotional use, including the number of students from his or her university who enter the steel industry.

Note: The Foundation would prefer the funding be spent on the students and would forego the annual UIRR attendance requirement if the current funding is insufficient.

1. Project Title: MSE Recruiting & Retention (R&R)
2. AIST Foundation Steel Professor
Name: [Paul Sanders](#)
Title: Patrick Horvath Professor of Materials Science and Engineering
Department: Materials Science and Engineering
University: Michigan Technological University
Phone: 906 231 4118
Email: sanders@mtu.edu
Address: 512 M&M, 1400 Townsend Dr, Houghton, MI 49931
3. Project Summary, Goals and Details: Recruit and retain students to grow undergraduate MSE enrollment. This project is needed to ensure the viability and resources for Michigan Tech MSE, and Steel Professor funds provide the flexibility for this important initiative. The more students we graduate, the more go into the steel industry (typically 10% per year). Goal is 33% growth over 5 years
4. Events and Activity
 - a. Recruiting
 - i. I established and lead the MSE Recruiting and Retention Committee. We meet weekly and have a soft-funded member who does much of the outreach.
 - ii. Committee work includes increasing middle and high school outreach, especially to underrepresented minorities and midwestern states beyond Michigan.
 1. New courses for [Michigan Tech Summer Youth Program](#)
 2. Local high school visits
 3. Host [ASM Teachers Camp](#) annually each summer
 4. Partnerships with [MiSTEM Regional Outreach](#)
 5. Materials outreach activities at [LIFT Detroit](#)

YOUR COMPLETE REPORT MUST BE SUBMITTED ELECTRONICALLY IN PDF FORM TO lwharrey@aist.org BY 30 JUNE. PHOTOS MUST BE EMAILED SEPARATELY.

Questions should be directed to Lori Wharrey at lwharrey@aist.org or +1.724.814.3044.



b. Retention

- i. AISTech 2024: 3-4 student attendees, including mixer, attend UIRR
- ii. AIST intern scholarships: 3 applicants/awardees, will try for more next year
- iii. Advise Material Advantage Chapter, which had an active group of officers this year (Table 1).
 1. Key activity is hosting MSE mixers around career fair, which are attended by 25 companies including Nucor and Cliffs (professional development).
 2. Note most events had 10-20 participants, which is a good level of involvement for a department of 100-125.

Table 1. Snippet from Michigan Tech Material Advantage student report showing activities and attendance at activities.

Number of Activities	
Total number of events/programs (do not include executive or individual committee/planning meetings): ?	About 20
Number of executive committee meetings: ?	14
Number of professional development events/programs: ?	5
Number of technical/educational events/programs: ?	2
Number of outreach events/programs: ?	0
Number of tours taken at companies/laboratories: ?	2
Number of social events: ?	14

What is the average number of attendees at a typical event organized by your chapter?	
☐ Less than 9	
☒ 10-20	

5. Event and Activity Cost: Travel \$1700, MSE mixers \$900, outreach staff \$2500, supplies \$500
6. Student Participation: see Table 1 from Material Advantage student report
7. Steel Plant Interaction:
 - a. Nucor visits Michigan Tech twice a year, and we are seeing most of our Nucor employed alums transferring to the new West Virginia plant. Going forward, this will be a key site for Michigan Tech's relationship with Nucor.
 - b. I am working to reinstate our relationship with Cliffs in partnership with Michigan Tech alum John Gruber (engineering and HR; Meeting Morgan Benner @ the UIRR was a big help). We lost traction during the transition from ArcelorMittal to Cliffs. I've had several conversations with John and Morgan and have begun planning.
 - c. I was on a team who submitted a proposal to the US DOE to modify EAF slag for concrete use. We partnered with Nucor and SDI, in part due to my connections.

How many students from this university have accepted employment in the steel industry upon graduation?

Employment data are hard to track, given uncertainty in defining the "steel industry" and the changing names of the companies, as well as voluntary student reporting. Table 2 shows Michigan Tech's full-time steel industry employment from 2015 to 2024, with 76 students (7.6 per year) of all majors employed at 16 companies. As expected, Cliffs, Nucor, Cliffs, Gerdau, and ArcelorMittal (mostly Cliffs as of 2020) lead the way. It is also interesting to note the rank of the employer vs. all other employers of Michigan Tech students (left column, all the 1's are in alphabetical order, I presume).

YOUR COMPLETE REPORT MUST BE SUBMITTED ELECTRONICALLY IN PDF FORM TO lwharrey@aist.org BY 30 JUNE. PHOTOS MUST BE EMAILED SEPARATELY.
Questions should be directed to Lori Wharrey at lwharrey@aist.org or +1.724.814.3044.



Table 2. Steel industry employment 2015-2024 (please do not share this outside review committee)

Rank	Employer Name	Count
58	Cleveland-Cliffs	16
64	Nucor	15
70	Gerdau	14
75	ArcelorMittal	13
231	United States Steel Corporation	5
400	Roberts Sinto Corporation	3
794	Adrian Steel Company	1
826	Ak Steel	1
851	Alro Steel	1
1181	Central Steel Building Systems, Inc	1
1198	Charter Dura-Bar	1
1393	Delta Steel Inc.	1
1848	Huron Valley Steel Corporation	1
2917	Steel Dynamics, Inc.	1
2920	Steeltech Ltd.	1
3175	United States Steel Corp	1

Future of Grant:

- ☐ I have \$_____ remaining and request permission to continue promoting the steel industry to engineering students at my university using these funds. I agree to provide an annual report to AIST until the funds are depleted.
- ☒ I request funding for an additional year and will continue engage the steel industry at my university.

Paul G. Sundin

6/29/24

Signature of Professor and Date

YOUR COMPLETE REPORT MUST BE SUBMITTED ELECTRONICALLY IN PDF FORM TO lwharrey@aist.org BY 30 JUNE. PHOTOS MUST BE EMAILED SEPARATELY.

Questions should be directed to Lori Wharrey at lwharrey@aist.org or +1.724.814.3044.