

## FACULTY VITA

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Name: Frank Peters  
Department: Industrial & Manufacturing Systems Engineering  
Current Rank: Associate Professor

### I. BACKGROUND, PROFESSIONAL EXPERIENCE AND RECOGNITIONS

#### A. Education

Ph.D. Penn State University, Industrial and Manufacturing Engineering, 1996  
Minor in Metals Science and Engineering  
M.S. Penn State University, Industrial and Manufacturing Engineering, 1994  
B.S. Penn State University, Industrial and Manufacturing Engineering, 1991

#### B. Academic Appointments

Director, Study Abroad Center, 2019-present  
C.G. 'Turk' and Joyce A. Therkildsen Professorship, 2018 - present  
Associate Professor, Department of IMSE, Iowa State University, 2002- present  
Associate Department Chair for Operations, IMSE, ISU, 2014 - 2018  
Interim Chair, Department of IMSE, Iowa State University, 2015 - 2016  
Assistant Director of the ISU Industrial Assessment Center, 2004-2016  
Associate Department Chair of Resources, IMSE, ISU, 2002 - 2008  
Assistant Professor, Department of IMSE, Iowa State University, 1996-2002  
Research Assistant, Penn State University, 1992-1995  
Teaching Assistant, Penn State University, 1991-1992

#### C. Other Professional Employment

Pelton Casteel, Inc., Milwaukee, WI, manufacturing engineer, summer 1993  
General Motors - Delco Products, Rochester, NY, industrial engineer, summer 1991  
Lord Corporation - Aerospace Division, Erie, PA, manufacturing engineer, summer 1990

#### D. Honors and Awards

Iowa Board of Regents Award for Faculty Excellence, 2017  
Institute of Industrial & Systems Engineers Lean Division Teaching Award (co-recipient with Leslie Potter for the development of IE 222) 2017  
Iowa State University, Industrial & Manufacturing Systems Engineering Department – Don Grant Faculty Award for Excellence in Undergraduate Education 2009 (inaugural award winner) & 2013 & 2017  
Iowa State University, College of Engineering – Superior Engineering Teacher Award 2012  
Institute of Industrial Engineers - Innovations in Curriculum Award, 2010  
– for the Sales Engineering Program, with Sly and Bumblauskas.  
American Foundry Society - Westover Award in Industrial Engineering, 2009

Iowa State University Engineering Student Council – Outstanding IE Professor 2000,  
2002, 2003, 2004

Hamed K. Eldin Young Faculty Award, 1999

State College Area Jaycees Outstanding Citizen Award, 1993

Chrysler Fellow/Society of Automotive Engineers Doctoral Scholar, 1992-1994

Foundry Education Foundation Scholarship, 1992

Penn State College of Engineering, Outstanding Teaching Assistant, 1992

## II. SCHOLARSHIP AND RESEARCH/CREATIVE ACTIVITIES

### A. Scholarship

# Denotes any publication derived from the candidate's thesis/dissertation.

+ Denotes student co-author.

- **Articles in Peer-Reviewed Journals – In Print or Accepted**

1. Lau, S., F. Peters and D. Eisenmann, "Development of an image analysis protocol to define noise surrounding indications in wet magnetic particle inspection," accepted for publication, *International Journal of Metalcasting*,
2. Schimpf, D.# and F. Peters, "Variogram Roughness Method for Casting Surface Characterization," *International Journal of Metalcasting* vol. 15, page 17-28, April 2020.
3. Voelker, M., C. Mackenzie and F. Peters, "A probabilistic model to estimate visual inspection error for metalcastings given different training and judgment types, environmental and human factors, and percent of defects," *SME Journal of Manufacturing Systems*, vol. 48, Part A, July 2018.
4. Wang, D.,# F. Peters, and M. Frank, "A Semiautomatic, Cleaning Room Grinding Method for the Metalcasting Industry," *ASME Journal of Manufacturing Science and Engineering*, vol. 139, December 2017.
5. Barnawal, P.,# M.C. Dorneich, M. Frank, and F. Peters, "Technical Brief: Evaluation of Design Feedback Modalities in Design for Manufacturability," *Journal of Mechanical Design*, vol. 139, no. 9, July 2017.
6. Voelker, M.# and F. Peters, "Development of a Digital Standard to Specify Surface Requirements of Cast Metal Surfaces," *ASTM Materials Performance and Characterization*, vol. 6, no. 2, May 2017.
7. Zhu, S.,# C.J. Magnussen,# E.L. Judd, + M.C. Frank and F. E. Peters, "Automated Composite Fabric Layup for Wind Turbine Blades," *ASME Journal of Manufacturing Science and Engineering*, Vol. 139, No. 6, pp. 061001-061001-10, January 2017.
8. Hardis, R.# and J. L.P. Jessop, F. E. Peters, and M. R. Kessler, "Cure kinetics characterization and monitoring of an epoxy resin using DSC, Raman Spectroscopy, and

- DEA," Composites: Part A Applied Science and Manufacturing, Vol. 49, pp. 100-109, June 2013.
9. Peters, F., R. Stone, K. Watts, P. Zhong, + and A. Clemons<sup>+</sup>, "Visual Inspection of Casting Surfaces," AFS Transactions, 2013.
  10. Daricilar, G.,# and F. Peters, "Methodology for assessing measurement error for casting surface inspection," International Journal of Metalcasting, 5, No. 3, pp. 7-15, Summer 2011.
  11. Rajashekhar, S., + F. Peters, and P. Molian, "Geometric Variability and Surface Finish of Weld Zones in Yb:YAG Laser Welded Advanced High Strength Steels," SME Journal of Manufacturing Processes, 12, No. 2, pp.73-84, August 2010.
  12. Peters, F., R. Voigt, S. Ou, and C. Beckermann, "Effect of Mold Expansion on Pattern Allowances in Sand Casting of Steel", International Journal of Cast Metals Research, Vol. 20, No. 5, pp. 275-287, 2007.
  13. Ryan, S.M., J. Jackman, F. Peters, S. Olafsson, M. Huba, "The Engineering Learning Portal for Problem Solving: Experience in a Large Engineering Economy Class," The Engineering Economist, 49, 1-20, 2004.
  14. VanVoorhis, T., F. Peters, and D. Johnson<sup>+</sup>, "Developing Software for Generating Pouring Schedules for Steel Foundries," Computers & Industrial Engineering, Vol. 39, pp. 219-234, April 2001.
  15. Sangnui, S.# and F. Peters, "The Impact of Surface Errors on the Location and Orientation of a Cylindrical Workpiece in a Fixture," ASME Journal of Manufacturing Science and Engineering, Vol. 123, pp. 325-330, May 2001.
  16. Faustine, W., R. Voigt and F. Peters, "Dimensional Variability of Aluminum Castings," AFS Transactions, Vol. 107, pp. 829-838, 1999.
  17. Peters, F. and E. Salisbury, "The Effect of Casting Form Variability on Machining Fixturing Error," AFS Transactions, Vol. 106, pp. 659-663, 1998.
  18. Nazareth, E., R. Voigt, and F. Peters, "Dimensional Variability of Production Iron Castings," AFS Transactions, Vol. 106, pp. 713-720, 1998.
  19. Salisbury, E. and F. Peters, "The Impact of Surface Errors on Fixtured Workpiece Location and Orientation," Transactions of NAMRI/SME, pp. 323-328, May 1998.
  20. Peters, F., R. Velaga, and R. Voigt, Assessing the Dimensional Repeatability of Metal Casting Processes," AFS Transactions, Vol. 104, pp. 181-190, 1996.

21. Potter, L., R. Voigt, F. Peters, J. Lies, and M. Chandra, "A Statistically Based Pattern Approval Process," AFS Transactions, Vol. 104, pp.307-316, 1996.
22. Peters, F., and R. Voigt, "Assessing the Capabilities of Patternshop Measurement Systems," AFS Transactions, Vol. 103, pp. 181-190, 1995.

- **Articles in Peer-Reviewed Journals – In Review**

- **Peer-Reviewed Conference Proceedings, Bulletins, or Reports – In Print/Accepted [I need to find the acceptance rates and add that]**

1. Bindel, M., K. Wyatt, E. Weflen, and F. Peters, "Large Scale Parallel 3D Printing of Metal Casting Patterns," IISE 2021, abstract accepted and paper submitted.
2. Schimpf, D. and F. Peters, "Variogram Roughness: An Objective Digital Method to Measure the Surface Roughness of Castings," IISE 2021, abstract accepted and paper submitted.
3. Peters, F., S. Lau, D. Schimpf, D. Eisenmann, "Development of Meaningful Relationships Between Steel Casting Surface Inspection Results and Performance," DOD Steel Summit, Aberdeen, MD, 2019.
4. Chay, J., + Jackman, J.J., Frank, M.C, Peters, F.E., "A New Metric for Evaluating Machinability of a Design", Proceedings of the Industrial and Systems Engineering Research Conference, Pittsburgh, PA, 2017.
5. Barnawal, P.,# Dorneich, M.C., Peters, F., & Frank, M., "Design and Evaluation of Designer Feedback System in Design for Manufacturability," Proceedings of the Human Factors and Ergonomics Society Annual Meeting. Los Angeles, CA, October, 2015.
6. Zhu, S.# M. Frank and F. Peters, "Automated Composite Fabric Layup for Wind Turbine Blades," Composites and Advanced Materials Expo, 2014, Orlando, FL.
7. Meng, F.#, Frank, M.C., and Peters, F.E., "Measurement, Analysis and Process Planning for the Layup of Fabrics in Wind Turbine Blades," AWEA WindPower 2012, Atlanta, GA.
8. Frank, M.C. and Peters, F.E., "Rapid Pattern Manufacturing: an Additive/Subtractive System for Large Functional Tooling," Proceedings of the Solid Freeform Fabrication Symposium, Austin, TX, 2012. (poster)
9. Meng, F.#, Frank, M.C., and Peters, F.E., Abstract - "Measurement of in-plane shear and out-of-plane waviness on the draping of unidirectional (UD) fabrics for wind blades", AWEA Windpower 2011, Anaheim CA, (poster).

10. Jackman , J.K., Frank, M.C., Peters, F.E., and Nolet, S., Abstract – “Sampling Intervals for Turbine Blade Measurements”, AWEA Windpower 2011, Anaheim CA, (poster).
11. Frank, M.C., Peters, F.E., and Karthikeyan, R.,# “Additive/Subtractive Rapid Pattern Manufacturing for Casting Patterns and Injection Mold Tooling,” Proceedings of the Solid Freeform Fabrication Symposium, Austin, TX, 2010.
12. D. Sly, D. Bumblauskas<sup>+</sup>, and F. Peters, “Development Of A Sales Engineering Program By Collaborating With Industry,” ASEE National Conference. 2010.
13. Frank, M.C., Peters, F.E., Luo, X.#, Meng, F.#, and Petrzalka, J.E.#, “A Hybrid Rapid Pattern Manufacturing System for Sand Castings,” Proceedings of the Solid Freeform Fabrication Symposium, Austin, TX, 2009.
14. Peters, F., Potter, L., and K. Min, “Developing Students’ Understanding of Global Issues through Lean Manufacturing,” ASEE/IEEE Frontiers in Education Conference, Saratoga Springs, NY, October 2008.
15. Potter, L., K. Min, and F. Peters, “Effecting Improvement in an Industrial Engineering Program by Applying Outcome Assessment Results,” ASEE National Conference, Honolulu, HI, June 2007.
16. B. Harwood,# F. Peters, M. Frank “Improving Productivity and Energy Efficiency in Heat Treatment,” TMS Conference (Material Science), Cincinnati, OH., September 2006,
17. Daricilar, G.,# F. Peters, and M. Blair, “Visual Assessment of Casting Surface Quality,” Material Science Technical Conference, Pittsburgh, PA., September 2005.
18. Olafsson, S., K. Saunders, J. Jackman, F. Peters, S. Ryan, V. Dark, and M. Huba, “Implementation and Assessment of Industrial Curriculum Reform,” Proceedings of the 2004 American Society for Engineering Education Annual Conference, Salt Lake City, Utah, June 2004.
19. Peters, F., J. Jackman, S. Olafsson, S. Ryan and K. Saunders “Integrated Curriculum to Improve Engineering Problem Solving,” Proceedings of the Industrial Engineering Research Conference, Houston, Texas, May 2004 (full paper).
20. F. Peters, J. Jackman, S. Ryan, and S. Olafsson, “An Active Learning Environment in an Integrated Industrial Engineering Curriculum,” Proceedings of the North Central Regional Conference, American Society for Engineering Education, Ames, IA, October, 2003.

21. S. Olafsson, M. Huba, J. Jackman, F. Peters, and S. Ryan, "Information Technology Based Active Learning: A Pilot Study for Engineering Economy," Proceedings of the 2003 American Society for Engineering Education Annual Conference, Nashville, TN, June 2003.
22. J. Jackman, S. Olafsson, F. Peters, S. Ryan, and M. Huba, "The Electronic Learning Portal: An Active Learning Environment for Information Technology Across the Curriculum," Proceedings of the Industrial Engineering Research Conference, Portland, OR, May 2003.
23. Peters, F. "Experiment on Dimensions of Steel Castings During Solidification," Modeling of Casting, Welding, and Advanced Solidification Processes Conference, San Diego, California, June 1998.
24. Peters, F., R. Voigt, and M. Blair, "Dimensional Repeatability of Investment Castings," 9th World Conference on Investment Casting, San Francisco, October 1996.
25. Peters, F. and R. Voigt, "Dimensional Capabilities of Steel Castings," Proceedings of the Near-Net-Shape Manufacturing: Examining Competitive Processes Conference, Pittsburgh, Pennsylvania, September 1993.

- **Books and Book Chapters**

n/a

- **Formally Invited Lectures and Presentations**

Invited Keynote Speaker at the Casting Technology New Zealand Conference, September 2019, Wellington, New Zealand. Made four presentations.

"Development of a Digital Standard to Specify Surface Requirements," ASTM Standards Meeting, Austin, TX, May 2016.

"Statistical Analysis of Spatial Data from Casting Surfaces", Iowa State University Physical Science/Engineering Statistics VIGRE Meeting, November 2008, (with graduate student Scott Von Busch).

"Assessing Measurement Error of Visual Surface Inspection", Penn State University – Industrial and Manufacturing Engineering Department – Distinguished Lecture Series October 2006; University Park, PA.

"Measurement Error of Casting Surface Inspection", American Foundry Society – Keystone Chapter, October 2006; Lancaster, PA.

"Variability Reduction in Steel Casting Operations", ISU Material Science and Engineering Seminar Series, Ames, IA., February 2005.

- **Contributed Lectures and Presentations [I need to address this area... not sure what should be included here]**

1. S. Lau, D. Eisenmann and F. Peters, "Measurement Error – Wet Magnetic Particle Inspection," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2019.
2. D. Eisenmann and F. Peters, "Best Practices for Magnetic Particle Inspection," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2018.
3. F. Peters, "Review of Dimensional Tolerance Standards for Castings and Implications of ISO 8062 Part 4 – 2017," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2017 .
4. F. Peters, "Development of a Digital Standard to Specify Surface Requirements," ASTM Standards Meeting, Austin, TX, May 2016.
5. F. Peters, "Development of a Digital Standard to Specify Surface Requirements," American Foundry Society Metalcasting Congress, Minneapolis, MN, April 2016.
6. M. Voelker,# P. Kemper<sup>+</sup>, and F. Peters, "Development of a Digital Standard to Specify Surface Requirements," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2015.
7. W. Johans#, L. Schlanglen,# F. Peters, M. Frank and J. Jackman, "Avoiding Waves in Longitudinal Blade Elements via Pre Shearing of Unidirectional Fabrics," International Conference on Future Technologies for Wind Energy, Laramie, WY, October 2013.
8. S. Zhu,# C. Magnussen#, M. Frank and F. Peters, "Automated Manufacturing of High Curvature Blade Geometry via Controlled Deformation of Composite Fabric by Shifting," International Conference on Future Technologies for Wind Energy, Laramie, WY, October 2013.
9. F. Peters, "Visual Inspection of Casting Surfaces: Measurement Errors and Solutions," University of Missouri – Science and Technology, Metallurgy Department seminar, April 2013.
10. Peters, F., R. Stone, K. Watts,# P. Zhong, <sup>+</sup> and A. Clemons,# "Visual Inspection of Casting Surfaces," American Foundry Society Casting Congress, St. Louis, MO, April 2013.
11. Zhang, P. <sup>+</sup>, R. Stone, and F. Peters, "Visual Inspection: Analysis of Ability to Differentiate Surfaces," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2012.

12. Jackman, J. and F. Peters, "Surface Anomaly Mapper (SAM): Because, what you don't know will hurt you!," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2012.
13. F. Peters, "Measurement Error in Visual Inspection: a Hands On Workshop," Steel Founders' Society of America Member Workshop, Chicago, IL, December 2012.
14. F. Peters, F. Meng,# M. Frank, "Measurement, Analysis and Process Planning for the Layup of Fabrics in Wind Turbine Blades," Blade Manufacturing Workshop, Dusseldorf, Germany, November 2012.
15. Meng, F.,# Frank, M.C., and Peters, F.E., "Measurement, Analysis and Process Planning for the Layup of Fabrics in Wind Turbine Blades," AWEA WindPower May 2012, Atlanta, GA.
16. F. Peters, "Research Advances for Wind Blade Manufacturing," Sandia Blade Workshop, Albuquerque, NM, May 2012.
17. F. Peters, R. Stone and K Watts,# "Visual Inspection of Castings," American Foundry Society – Illinois Chapter, Peoria, IL, April 2012.
18. R. Stone and F. Peters, "Usage of MFFT for Selecting Inspectors," Steel Founders' Society of America Member Workshop, Chicago, IL, December 2011.
19. F. Peters, R. Stone and K Watts,# "Visual Inspection of Castings," American Foundry Society – Hawkeye Chapter, Cedar Falls, IA, May 2011.
20. F. Peters, R. Stone and K Watts,# "Visual Inspection of Castings," American Foundry Society Metalcasting Congress, Schaumburg, IL, April 2011.
21. Watts, K.#, A. Clemons,# R. Stone, and F. Peters, "Advancing the Visual Inspection Process," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2011.
22. Stone, R., K. Watts# and F. Peters, "Visual Inspection: Initial Findings through Cognitive Ergonomics" Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2010.
23. "Lean Manufacturing for Metalcasting," American Foundry Society Casting Congress, Las Vegas, NV, April 2009.
24. "System Improvements for Mass Vaccination," Polk County Department of Health. Des Moines, IA, March 2009.



25. "Innovative Control of Metal Pouring," International Cast Iron Melting Conference, Orlando, FL, January 2009.
26. "Rapid Patternmaking," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2008.
27. "Developing Students' Understanding of Global Issues through Lean Manufacturing," ASEE/IEEE Frontiers in Education Conference, Saratoga Springs, NY, October 2008
28. "Surface Anomaly Mapping: What has your Data Done for you Lately," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, December 2007.
29. "Grindgame: an Automated grinding system with flexibility to accommodate steel castings," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, December 2007.
30. "Manufacturing System Improvements for Metalcasting," The Cast Metals Institute of the American Foundry Society, Monrovia, California, November 2007.
31. "Measurement Error of Visual Casting Surface Inspections," Steel Founders' Society of America, Technical & Operating Conference, Chicago, Illinois, November 2005.
32. "Metallurgical Effects of Weld Repair Practices," Steel Founders' Society of America, Technical & Operating Conference, Chicago, Illinois, November 2005.
33. "Variability: Causes, Concerns, and Corrections," Steel Founders' Society of America, Technical & Operating Conference, November 2004.
34. "Variability Reduction," American Foundry Society, Casting Congress, June 2004.
35. "An Active Learning Environment in an Integrated Industrial Engineering Curriculum," North Central Regional Conference, Ames, Iowa, October 2003.
36. "Assessing Process and Product Variability," Steel Founders' Society of America, Technical and Operating Conference, Chicago, Illinois, November 2003.
37. "Reducing Variability in Steel Casting Operations," American Foundry Society, Wisconsin Regional Conference, February 2003.
38. Menefee, A., J.# Anderson,# F. Peters, A. Menning, and T. VanVoorhis, "Initial Studies Towards Reduction in Variability in Steel Foundries," Steel Founders' Society of America – Technical and Operating Conference, Chicago, Illinois, November, 2002.
39. American Foundry Society Cast Expo, Kansas City, May 2002

40. Peters, F. and J. Jackman, "Quantitative Active Clay Analysis," 2001 American Foundry Society Casting Congress, Dallas TX, April 2001.
41. Peters, F., "Material Handling Improvements to Support Lean Manufacturing in Steel Foundries," 2001 American Foundry Society Casting Congress, Dallas TX, April 2001.
42. Peters, F., "Re-Engineering Casting Production Systems – Successes and Opportunities," 2001 American Foundry Society – Wisconsin Regional Conference, Milwaukee, WI, February 2001.
43. Peters, F., M. Beyersdorfer, and T. VanVoorhis, "Instigating Changes to Production Systems," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2000.
44. Patterson, P., F. Peters, A. Menefee, + T. Hoffman, + and G. O'Connor+, "Development of Ergonomic Improvements for the Steel Foundry Industry," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2000.
45. Peters, F., T. VanVoorhis, and T. Rolling#, "Re-Engineered Casting Production Systems – Successes and Opportunities," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1999
46. Peters, F. and T. VanVoorhis, "Current Steel Casting Production Practices," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1998.
47. Peters, F. "Experiment on Dimensions of Steel Castings During Solidification," Modeling of Casting, Welding, and Advanced Solidification Processes Conference, San Diego, California, June 1998.
48. Peters, F. and E. Salisbury, "The Impact of Surface Errors on Fixtured Workpiece Location and Orientation," North American Manufacturing Research Institute Conference, Atlanta, Georgia, May 1998.
49. Peters, F. and T. VanVoorhis, "Re-Engineering Casting Production Systems," Proceedings of the 1997 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1997.
50. Peters, F. and R. Voigt, "Pattern Allowance Prediction," Steel Founders' Society of America T & O Conference, Chicago, IL, November 1996.
51. Potter, L., R. Voigt, F. Peters, J. Lies, and M. Chandra, "A Statistically Based Pattern Approval Process," 1996 AFS Casting Conference, Philadelphia, Pennsylvania, April 1996.

52. Peters, F., J. Ristey, W. Vaupel, E. DeMeter, and R. Voigt, "Dimensional Variability of Production Steel Castings," 1994 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1994.
53. Peters, F. and R. Voigt, "Casting Inspection Strategies for Determining Dimensional Variability," 1993 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1993.
54. Peters, F. and R. Voigt, "Dimensional Capabilities of Steel Castings," Near-Net-Shape Manufacturing: Examining Competitive Processes Conference, Pittsburgh, Pennsylvania, September 1993.

- **Other Scholarly Contributions** – Non Refereed Conferences

1. J. Tschertter, D. Eisenmann and F. Peters, "Fatigue Testing of Steel Castings and Impact of Surface and Near Surface Conditions," Steel Founders' Society of America Technical and Operating Conference, December 2020.
2. D. Schimpf, M. Frank, A. Bodenham and F. Peters, "Sectioning Method For Automatic Path Planning: Robotic Grinding For High Variety, Low Volume Production," Steel Founders' Society of America Technical and Operating Conference, December 2020.
3. S. Lau, D. Eisenmann and F. Peters, "Reducing Measurement Error in MPI of Metal Castings," DOD Steel Summit, December 2020.
4. D. Schimpf, M. Frank and F. Peters, "Semi Automated Grinding System for Metal Castings," DOD Steel Summit, December 2020. – Poster presentation--
5. S. Lau, D. Eisenmann and F. Peters, "Measurement Error – Wet Magnetic Particle Inspection," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2019.
6. D. Eisenmann and F. Peters, "Best Practices for Magnetic Particle Inspection," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2018.
7. F. Peters, "Review of Dimensional Tolerance Standards for Castings and Implications of ISO 8062 Part 4 – 2017," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2017 .
8. M. Voelker, # P. Kemper, + and F. Peters, "Development of a Digital Standard to Specify Surface Requirements," Steel Founders' Society of America Technical and Operating Conference, Chicago, IL, December 2015.

9. Barnawal, P.,# M. Dorneich, F. Peters, and M. Frank, “Evaluation of Designer Feedback Systems in Design for Manufacturability,” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2014.
10. Zhang, P., + R. Stone, and F. Peters, “Visual Inspection: Analysis of Ability to Differentiate Surfaces,” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2012.
11. Jackman, J. and F. Peters, “Surface Anomaly Mapper (SAM): Because, what you don’t know will hurt you!,” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2012.
12. Okhuysen, V., P. Tosta, L. Potter, F. Peters, P. Lynch and R. Voigt, “Assessment of Measurement Systems for the Dimensional Inspection of Investment Castings,” 59th Annual Investment Casting Institute Technical Conference, Nashville, TN, October 2012.
13. F. Peters, “Research Advances for Wind Blade Manufacturing,” Sandia Blade Workshop, Albuquerque, NM, May 2012.
14. Watts, K.,# A. Clemons,# R. Stone, and F. Peters, “Advancing the Visual Inspection Process,” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2011.
15. Stone, R., K. Watts # and F. Peters, “Visual Inspection: Known Factors that Affect Performance ” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2010.
16. Stone, R., K. Watts# and F. Peters, “Visual Inspection: Initial Findings through Cognitive Ergonomics ” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2010.
17. Walker J. # and F. Peters, “Innovative Control of Metal Pouring”, International Cast Iron Melting Conference, Orlando, FL, January 2009.
18. Von Busch, S., #W. Boonsuk, + J. Jackman, M. Morris, and F. Peters, “Analysis of Surface Anomaly Data ” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2008.
19. Frank, M., F. Peters, X. Luo,# and S. Oberbroeckling+, “Rapid Patternmaking ” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2008.

20. Boonsuk, W.,# S. Von Busch<sup>+</sup>, F. Peters, and J. Jackman, “Surface Anomaly Mapping: What Has Your Data Done For you Lately?” Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL, December 2007.
21. Wang, D.,# M. Frank, and F. Peters; “GrindGame: An Automated Grinding System with Flexibility to Accommodate Steel Castings,” Steel Founders’ Society of American Technical and Operating Conference, Chicago, IL, December 2007.
22. Walker, J.,# M. Frank, and F. Peters, “Innovative control of Metal Pouring,” Steel Founders’ Society America Technical and Operating Conference, Chicago, IL, December 2007.
23. F. Peters, G. Saveraid <sup>+</sup>and M. Frank; “Instrumentation of Heat Treatment,” Steel Founders’ Society of America T&O Conference, Chicago, IL., December 2006.
24. Peters, F. and F. Schuster<sup>+</sup>; “An Inside View of the Mold Before Pouring,” Foundry Management and Technology, December 2005.
25. Daricilar, G.# and F. Peters, “Measurement Error of Visual Casting Surface Inspections,” Steel Founders’ Society of America T&O Conference, Chicago, Illinois, November 2005.
26. Saveraid, G.,# F. Peters, and J. Cory (Durametal Corporation); “Transforming Mold Line Data into Process Knowledge,” Steel Founders’ Society of America T&O Conference, Chicago, Illinois, November 2005.
27. Harwood, B.,# F. Peters and M. Frank; “Heat Treatment: Taking Control of Productivity and Energy Usage,” Steel Founders’ Society of America T&O Conference, Chicago, Illinois, November 2005.
28. Peters, F., B. Harwood<sup>+</sup> and D. Breid<sup>+</sup>; “Metallurgical Effects of Weld Repair Practices,” Steel Founders’ Society of America T&O Conference, Chicago, Illinois, November 2005.
29. Harwood, B. <sup>+</sup>, C. Samuelson, <sup>+</sup> B. Bishop<sup>+</sup>, R. Stevenson<sup>+</sup>, F. Peters, “Variability: Causes, Concerns, and Corrections,” Steel Founders’ Society of America T&O Conference, Chicago, Illinois, November 2004.
30. Menning, A.#, R. Stevenson#, J. Anderson# and F. Peters, “Assessing Process and Product Variability,” Proceedings of the Steel Founders’ Society of America Technical and Operating Conference, Chicago, IL., November, 2003.
31. Menefee, A.#, J. Anderson#, F. Peters, A. Menning#, and T. VanVoorhis, “Initial Studies Towards Reduction in Variability in Steel Foundries,” Steel Founders’ Society of America – Technical and Operating Conference, Chicago, Illinois, November, 2002.

32. Peters, F., J. Anderson<sup>+</sup>, A. Menefee<sup>+</sup>, and P. Patterson, "Solutions to Improve Ergonomics and Productivity," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2001.
33. VanVoorhis, T., B. Bernard,<sup>#</sup> and F. Peters, "Impact of Variability on Productivity, WIP and Lead Time," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2001.
34. Peters, F., M. Beyersdorfer, and T. VanVoorhis, "Instigating Changes to Production Systems," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2000.
35. Patterson, P., F. Peters, A. Menefee, <sup>+</sup> T. Hoffman<sup>+</sup>, and G. O'Connor<sup>+</sup>, "Development of Ergonomic Improvements for the Steel Foundry Industry," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2000.
36. Voigt, R., R. Monroe, G. DiSpensa, C. Monroe and F. Peters, "Pattern Allowances-Predicting Casting Dimensions from Tool Dimensions," Steel Founders' Society of America-Technical and Operating Conference, Chicago, Illinois, November 2000.
37. Peters, F., T. VanVoorhis, and T. Rolling,<sup>#</sup> "Re-Engineering Casting Production Systems – Successes and Opportunities," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1999.
38. Peters, F. and T. VanVoorhis, "Current Steel Casting Production Practices," Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1998.
39. Peters, F and T. VanVoorhis, "Re-Engineering Casting Production Systems," Proceedings of the 1997 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1997.
40. Voigt, R., and F. Peters, "Development of Dimensional Tolerances for Steel Castings," Proceedings of the 1997 Steel Founders Society of America T & O Conference, Chicago, IL, November 1997.
41. Peters, F. and R. Voigt, "Pattern Allowance Prediction," Proceedings of the Steel Founders Society of America T & O Conference, Chicago, IL, November 1996.
42. Vaupel, W., E. DeMeter, F. Peters, and R. Voigt, "Geometric Variability of Production Steel Castings," Proceedings of the 1995 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1995.
43. Potter, L., R. Voigt, and F. Peters, "A Preliminary Analysis of the Influence of Casting Feature Variables and Measurement Instruments on the Repeatability of Casting Feature

Dimensions," Proceedings of the 1995 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1995.

44. Peters, F., R. Voigt, L. Potter, and E. DeMeter, "Dimensional Repeatability of Steel Castings: an Update," Proceedings of the 1995 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1995.
45. Peters, F., J. Ristey, W. Vaupel, E. DeMeter, and R. Voigt, "Dimensional Variability of Production Steel Castings," Proceedings of the 1994 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1994.
46. Vaupel, W., E. DeMeter, F. Peters, and R. Voigt, "The Implications of Tolerance System Interpretation on Past and Present Dimensional Variability Studies," Proceedings of the 1994 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1994.
47. Peters, F. and R. Voigt, "Casting Inspection Strategies for Determining Dimensional Variability," Proceedings of the 1993 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1993.
48. Voigt, R. and F. Peters, "Dimensional Tolerances and Shrinkage Allowances for Steel Castings," Proceedings of the 1992 Steel Founders' Society of America Technical and Operating Conference, Chicago, Illinois, November 1992.

#### **B. Patents, Disclosures, and Technology Transfer**

1. US Patent Application PCT/US2012/0036231 "Fabric Winding Machine", B. Wollner, F.E. Peters, Frank, M.C, Filing Date: May 3rd 2011
2. Invention Disclosure ISURF #04264, "Casting Analysis Software: CastingANA", Frank, M.C, F. Peters, P. Barnawal, A. Joshi, N. Chen, C. Monroe, 2014
3. Invention Disclosure ISURF #04265, "Machinability Analysis Software: MachiningANA", Frank, M.C, F. Peters, P. Barnawal, A. Joshi, G. Hou, Y. Li, 2014

#### **C. Funded Grants and Contracts. [indicates share to Peters; Peters' role]**

- F. Peters, M. Frank, D. Eisenmann, "Steel Performance Initiative," subcontract from Steel Founders Society of America – Original award from Defense Logistics Agency, 2/15/2021 – 10/1/2022, \$500,000 [167,000; PI]
- F. Peters, M. Frank, J. Jackman, C. Mackenzie, "Digital Innovative Design for Reliable Casting Performance," subcontract from Steel Founders Society of America – Original award from Defense Logistics Agency, 1/22/2018 – 9/30/2022, \$1,285,000 [424,000; PI]

- F. Peters, “Digital Standard for Surface Quality Inspection,” subcontract from ATI – Original award from Defense Logistics Agency, 3/1/2018 – 2/28/2023, \$300,000
- J. Cui et al., “Cost Effective 6.5% Silicon Steel Laminate for Electric Machines,” Department of Energy, 10/1/2016 – 9/30/2018, \$3,800,000 [38,000; consultant]
- M. Frank, F. Peters, J. Jackman, M. Dorneich, “Automated Manufacturability Analysis Software – “ANA”: Early intervention to aid the conceptual design process and accelerate the digital path to manufacturing,” 2/1/2016 – 5/31/2017, Digital Manufacturing and Design Innovation Institute, \$1,070,517. [267,000; co-PI]
- M. Frank and F. Peters, “Elastic Cloud-Based Make,” 2/1/2016 – 1/31/2017, Subcontract from GE- original award from Digital Manufacturing and Design Innovation Institute, \$250,000. [125,000; co-PI]
- F. Peters, “Development of Digital Surface Standard,” Steel Founders’ Society of America, 1/1/2015 – 8/15/2015, \$20,000.
- F. Peters, M. Frank, “Rapid Pattermaking Machine Development,” Magotteaux, 1/15/2015 – 8/15/2015, \$50,000 [25,000; PI]
- M. Frank, F. Peters, “iFAB Foundry,” Penn State University; original source DARPA, 8/1/2012- 2/1/2014, \$2.1M to ISU. Reduced to \$500,000 because of program cut. [250,000; co-PI]
- M. Frank, F. Peters, J. Jackman, P. Sarkar, V. Dayal, “Innovative Offshore Vertical Axis Wind Turbine Rotors,” Sandia National Laboratories; original source DOE, 3/1/2012 – 2/28/2017, \$4.1M with \$1M to ISU. Reduced to 50,000 due to program cut. [12,500; co-PI]
- G. Maxwell, F. Peters, C. Christy, “Industrial Assessment Center,” Department of Energy, 10/1/2012 – 9/30/2016, \$1,000,000. [500,000; co-PI]
- F. Peters, PI with R. Stone and T. Schorn (Enkei Inc.), “Visual Assessment of Cast Surfaces,” DOD Benet Laboratories, 3/1/2010 – 8/30/2012, \$290,000. [145,000; PI]
- F. Peters, PI with M. Frank, “Advanced Steel Casting Tooling Development” Steel Founders’ Society of America, 3/1/2010-2/28/2011, \$40,000. [20,000; PI]
- M. Frank, F. Peters, J. Jackman and V. Dayal. “Advanced Manufacturing Innovation Initiative,” Iowa Office of Energy Independence. 7/27/2009 – 7/26/2012, \$1,053,000 Joint project with TPI Composites and working with Sandia National Laboratories for wind turbine blades. [263,000; co-PI]



- Peters, PI, with J. Jackman and M. Frank, "Advanced Steel Castings – Part 2", DOD (through Steel Founders' Society of America), 10/1/2008-4/30/2009, \$50,000. [16,500; PI]
- Peters, PI, "Mass Vaccination System Development and Modeling," Polk County Department of Health, 7/15/2008 – 10/31/2008, \$11,000.
- Peters, PI, "Manufacturing System Improvements for For-Most Livestock Equipment Company", For Most Manufacturing and IPRT, 10/1/2007-7/1/2008, \$20,793.
- Peters, PI, with J. Jackman and M. Frank, "Advanced Steel Castings", DOD (through Steel Founders' Society), 1/1/2007-12/31/2008, \$200,000. [68,000; PI]
- G. Maxwell, PI with F. Peters, "Industrial Assessment Center," Department of Energy, 10/1/2006 – 9/30/2012, \$659,000. [330,000; co-PI]
- M. Frank, PI with F. Peters, M. Morris and S. Vardeman, "A Study of the Food Manufacturing Industry of Iowa: Focus on Packaging;" 1/2/2006-10/1/2006, \$25,000. [6,200; co-PI]
- M. Frank, PI with F. Peters and S. Chumbley, "Welding Process Advancements for Wear Resistant Augers," Industrial Hardfacing Inc./IPRT, \$50,000, December 2005-August 2006; \$50,000, March 2006-March 2007. [17,500; co-PI]
- Peters, PI, with M. Frank, "Energy Instrumentation", \$866,847 (50% share), US Department of Energy, May 2005 – October 2013. [433,000; PI]
- Peters, PI, "Automated Grinding System for Wear Resistant Augers," Industrial Hardfacing Incorporated, July 2004-June 2005, \$9359.
- Olafsson, PI with Jackman, Ryan and Huba, "An Active Learning Environment for Information Technology Across the Curriculum," NSF, January-December 2003, \$100,010. [25,000; co-PI]
- Peters, PI, "Advanced Manufacturing Improvements for Industrial Hardfacing Incorporated," Industrial Hardfacing Incorporated and CATD, September 2002 – June 2003, \$17,812.
- Peters, PI, with VanVoorhis, "Reduction in Energy Consumption and Variability in Steel Foundry Operations," Department of Energy, March 2002 – February 2005, \$325,489. [228,000; PI]
- Peters, PI, "Ultrasonic Processing of Liquid Aluminum for Metalcasting- a Feasibility Study," ETREMA Products, June 2001-December 31, 2001, \$2,000.
- Peters, PI, with Patterson, "Ergonomic Improvements for Foundries," Department of Energy, March 2000-May 2002, \$129,350. [66,000; PI]

Peters, PI, with Patterson, "Industrial Support for: Ergonomic Improvements for Foundries," Consortium of Companies, March 2000-May 2002, \$14,400. [7,200; PI]

Wang, PI, with Peters, Jackman, and Zhang, "Soybean Transformation Program at Iowa State University," Iowa Soybean Promotion Board, April 1999- October 2002, \$504,014 [50,000; co-PI]

Peters, PI, with VanVoorhis, "Re-Engineering Casting Production System," Department of Energy, March 1998-February 2001, \$301,321. [180,000; PI]

Peters, PI, with VanVoorhis, "Industrial Support for: Re-Engineering Casting Production Systems," Consortium of Companies, March 1998-February 2001, \$47,541. [28,000; PI]

Jackman, PI, with Peters and Harris, "On-Line Bentonite Measurement System For Green Sand Molding," John Deere Foundry & CATD, July 1998-February 1999, \$36,000. [12,000; co-PI]

Jackman, PI with Peters, Vardeman, and Harris, "Stochastic Process Control of Green Sand Mulling," John Deere Foundry & CATD, July 1998-February 1999, \$24,400. [6,000; co-PI]

Peters, PI, "Enhanced Dimensional Performance," Department of Defense (subcontract from Penn State), August 1997-December 1999, \$90,000.

C. Moller-Wong, PI, with, Peters and Salisbury, "Analysis of Model 90 Spool/bore Value," Sauer-Sundstrand, Ames, Iowa, 1997, \$32,466. [11,000; co-PI]

Peters, PI, "Investigation of a New Method of Evaluating Sand Molds for Metal Casting," SME Education Foundation, July 1, 1997-June 30, 1998, \$10,000.

Peters, PI, "Ultrasonic Evaluation of Sand Molds for the Metal Casting Process," University Special Research Initiation Grant, ISU, January 1997-December 31, 1997, \$9,000.

### **Educational Grants**

G. Takle and 7 others, "A National REU Site in Wind Energy Science, Engineering & Policy," National Science Foundation, 4/1/2011 – 3/31/2014, \$500,000. [60,000; co-PI]

J. McCalley et al., "IGERT: Wind Energy Science, Engineering and Policy," National Science Foundation, 9/1/2011 – 8/31/2014, \$550,000. [11,000]

Peters, F., M. Frank, M. O'Donnell, "Advanced Metrology for Wind Energy Manufacturing," IAWIND, October 1, 2010 – December 31, 2010, \$120,000. Purchased laser tracker to support education and research. [40,000]

Potter, P.I. with Min and Peters, "Lean Manufacturing and Applied Kaizen," John Deere Foundation, January 2006-June 2006, \$4662. [1,500; co-PI]

Peters, P.I. with Min and Potter, "IMSE International Kaizen Course Development," Iowa State Council on International Programs, January 2006-June 2006, \$9000. [3,000; PI]

Freshman Honor's Program, \$1000 to support student in summer 2005.

Peters, F., "Welding Laboratory to Improve Manufacturing Engineering Education," equipment from Lincoln Electric, September 1996, \$18,200.

#### **D. Pending Grants and Contracts**

### **III. TEACHING AND STUDENT MENTORING**

#### **A. Instruction for ISU**

Semester	Course	Course Title	Credits	No. of Students	Evaluation (out of 5.0)	Lab?	Teaching Assistants	
							for lab	for lecture
2020 Spring	IE 348	Solidificaiton Processes	3	144	4.35	Y	3	0.25
2019 Spring	IE 348	Solidificaiton Processes	3	79	4.02	Y		
2019 Spring	IE 348	Solidificaiton Processes	3	89	3.89	Y		
2019 Spring	IE 448	Manufacturing Systems Engineering	3	115	4.13	N		1
2018 Summer	IE 448 *	Manufacturing Systems Engineering	3	24	4.50	N		
2018 Spring	IE 348	Solidification Processes	3	75	4.34	Y	2.34	0.16
2018 Spring	IE 348	Solidification Processes	3	89	4.43	Y	2.34	0.16
2017 Fall	IE 446/546	Geometric Variability in Manufacturing	3	17	4.57	N		
2017 Spring	IE 348	Solidification Processes	3	85	3.83	Y	2.34	0.16
2017 Spring	IE 348	Solidification Processes	3	93	4.06	Y	2.34	0.16
2016 Fall	IE 248	Engr. System Design, Mfg. Processes & Specs.	3	189	3.68	Y	4.66	0.34
2016 Spring	IE 348	Solidification Processes	3	146	4.35	Y	4.66	0.34
2015 Spring	IE 543	Wind Energy Manufacturing	3	24	4.82	N		
2015 Spring	IE 348	Solidification Processes	3	131	4.61	Y	4.5	0.5
2015 Spring	IE 222	Design & Analysis for System Improvements	3	70	4.49	N		1
2014 Fall	Engr 340	Intro. To Wind Energy: Sys. Design & Delivery	3 **	24	n/a	N		
2014 Spring	IE 222	Design & Analysis for System Improvements	3	50	4.69	N		0.5
2014 Spring	IE 348	Solidification Processes	3	109	4.38	Y	4	
2013 Fall	Engr 340	Intro. To Wind Energy: Sys. Design & Delivery	3 **	24	4.33	N		
2013 Fall	IE 222	Design & Analysis for System Improvements	3	27	4.44	N		0.5
2013 Spring	IE 222x	Design & Analysis for System Improvements	3	45	3.73	N		
2013 Spring	IE 348	Solidification Processes	3	94	4.35	Y	3	
2013 Spring	IE 446/546	Geometric Variability in Manufacturing	3	16	4.25	N		
2012 Fall	Engr 340	Intro. To Wind Energy: Sys. Design & Delivery	3 **	18	n/a	N		
2012 Spring	IE 222x	Design & Analysis for System Improvements	3	37	4.00	N		
2012 Spring	IE 348	Solidification Processes	3	96	4.43	Y	3	
2012 Spring	IE 543	Wind Energy Manufacturing	3	10	4.80	N		
2011 Fall	Engr 340x	Intro. To Wind Energy: Sys. Design & Delivery	3 **	30	4.15	N		
2011 Spring	Hon 290	Wind Energy Honor's Seminar	1 **	20	n/a	N		
2011 Spring	IE 348	Solidification Processes	3	70	4.42	Y	2.5	
2011 Spring	IE 446/546 *	Geometric Variability in Manufacturing	3	13	4.70	N		
2010 Fall	IE 222x	Design & Analysis for System Improvements	3	27	4.14	N		
2010 Spring	IE 348	Solidification Processes	3	67	4.37	Y	2.5	
2010 Spring	IE 543x *	Wind Energy Manufacturing	3	23	4.33	N		
2009 Spring	IE 348	Solidification Processes	3	63	4.40	Y	2.5	
2009 Spring	IE 446/546 *	Geometric Variability in Manufacturing	3	19	4.60	N		
2008 Spring	IE 348	Solidification Processes	3	63	4.42	Y	2.5	
2008 Spring	IE 421x/422x	Lean Mfg. Production Systems	3 **	8	5.00	N		
2008 Spring	IE 588 *	Information Systems for Mfg.	3	29	4.67	N		
2007 Spring	IE 348	Solidification Processes	3	62	4.39	Y	2	
2007 Spring	IE 421x/422x	Lean Mfg. Production Systems	3 **	15	5.00	N		
2007 Spring	IE 446x *	Geometric Variability in Manufacturing	3	13	4.57	N		
2007 Spring	IE 546x	Geometric Variability in Manufacturing	3	14	4.71	N		
2006 Fall	IE 501/601	Research Basics & Communication	1	24	n/a	N		
2006 Spring	IE 348	Solidification Processes	3	67	4.18	Y	2	
2006 Spring	IE 448 *	Manufacturing Systems Engineering	3	48	4.14	N		
2006 Spring	IE 588 *	Information Systems for Mfg.	3	22	4.63	N		
2005 Spring	IE 348	Solidification Processes	3	93	4.23	Y	3	
2005 Spring	IE 446/546 *	Geometric Variability in Manufacturing	3	36	4.70	N		
2004 Fall	IE 448 *	Manufacturing Systems Engineering	3	58	4.50	N		1
2004 Spring	IE 348	Solidification Processes	3	74	4.22	Y	3	
2003 Fall	IE 448 *	Manufacturing Systems Engineering	3	74	4.33	N		1
2003 Fall	IE 588	Information Systems for Mfg.	3	9	3.78	N		
2003 Summer	IE 448 *	Manufacturing Systems Engineering	3	19	4.25	N		
2003 Spring	IE 348	Solidification Processes	3	63	4.02	Y	2	
2002 Fall	IE 248	Engr. System Design, Mfg. Processes & Specs.	3	70	4.35	Y	2	
2002 Fall	IE 588	Information Systems for Mfg.	3	16	4.21	N		
2002 Summer	IE 448	Manufacturing Systems Engineering	3	23	4.40	N		
2002 Spring	IE 348	Solidification Processes	3	75	4.08	Y	3	
2001 Fall	IE 248	Engr. System Design, Mfg. Processes & Specs.	3	59	4.17	Y	2	
2001 Fall	IE 588	Information Systems for Mfg.	3	7	4.14	N		
2001 Spring	IE 348	Solidification Processes	3	37	4.10	Y	1	
2000 Fall	IE 348	Solidification Processes	3	42	3.73	Y	1	
2000 Fall	IE 248	Engr. System Design, Mfg. Processes & Specs.	3	46	4.41	Y	1	
2000 Spring	IE 479/579	Metal Casting Processes	3	6	4.33	N		
2000 Spring	IE 348	Solidification Processes	3	62	3.77	Y	1.5	
1999 Fall	IE 448	Manufacturing Systems Engineering	3	31	4.00	N		
1999 Fall	IE 248	Engr. System Design, Mfg. Processes & Specs.	3	76	3.47	Y	2	
1999 Spring	IE 374	Industrial Methodology	3	25	3.77	Y	1	
1998 Fall	IE 448	Manufacturing Systems Engineering	3	5	4.80	N		
1998 Fall	IE 374	Industrial Methodology	3	36	4.33	Y	1	
1998 Spring	IE 479/579	Metal Casting Processes	3	18	4.50	N		
1998 Spring	IE 374	Industrial Methodology	3	15	3.92	Y	1	
1997 Fall	IE 374	Industrial Methodology	3	40	3.53	Y	1	
1997 Spring	IE 445	Computer Integrated Mfg II (CAD)	3	7	4.14	Y		
1997 Spring	IE 374	Industrial Methodology	3	25	3.86	Y	1	
1996 Fall	IE 444	Computer Integrated Mfg I (CAM)	3	10	3.80	Y		

\* also offered via distance education

\*\* team taught (responsible for 1/3)

## **B. Curriculum Development Activity for ISU**

- IE 248 - Engr. System Design, Mfg. Processes & Specs.; developed lecture laboratory with assistance from Jackman and Chen in 1999; assisted subsequent faculty in course maintenance since then; updated course in my 2016 offering
- IE 348 – Solidification Processes; sole developer for lecture and laboratory in 2000; ongoing course improvements and new laboratories
- IE 448 – Manufacturing Systems Engineering; co-developed course with Jackman in 1998; assisted with course maintenance since then
- IE 222 - Design & Analysis for System Improvements; co-developed course with Potter in 2012 with assistance from Min in an earlier iteration in 2007
- IE 446/546 – Geometric Variability in Manufacturing; developed course in 2005

## **C. Supervision of Students as Major Professor**

### **Ph.D. students**

1. Eric Weflen, expected 2023
2. Sharon Lau, expected 2020
3. Daniel Schimpf, expected 2021
4. Ali Khorasoni, 2020
5. Fanqi Meng, 2009-2012 – co-major professor with M. Frank; now at Stryker
6. Danni Wang, 2004-2007 – co-major professor with M. Frank; now at Intuitive Surgical
7. Sutee Eamkajornsiri, 2002-2005 – co-major professor with A. Chandra; now at Kohler
8. Supanan Sangnui, 1998-2002; now at Prince of Songklu University, Thailand

### **M.S. Students**

1. Logan Beguhn, 2020
2. Jeff Tschertter, 2020
3. Sharon Lau, 2019; pursuing PhD at ISU
4. Jaipravin Vijayarangan, 2014-2017; now at Tesla
5. Michelle Voelker, 2014-2016; now at Rolls Royce
6. Tyler Fox, 2013-2016 – co-major with S. Sritharan and P. Taylor; now at ClinicNote
7. Niechen Chen, 2013-2015 – co-major professor with M. Frank; will be at Northern Illinois University
8. Lijin Kottayil-Raghavan, 2013-2015; now at Danfoss Power Solutions
9. Alex Clemons, 2011-2013 – co-major professor with R. Stone; now at Katecho
10. Rick Hardis, 2010-2012 – co-major professor with M. Kessler; now at Kuraray
11. Luke Schlanglan, 2010-2012; now at Prime Digital Academy
12. Benjamin Wollner, 2009-2011; now at CB Solar
13. Kristopher Watts, 2009-2011- co-major professor with R. Stone; now at Caterpillar
14. Gregory Saveraid, 2007-2010; now at Deere
15. Jenna Pritchard, 2008-2010; now at SpaceX
16. John Christen, 2006-2009; now at Marshalltown Co.
17. Michael Rickers, 2007-2009;

18. Lei Yu, 2007-2009
19. Scott Von Busch, 2006-2008; now at Deere
20. Fanqi Meng, 2006-2008; now at Styker
21. Justin Walker, 2005-2007; now at Bethlehem College and Seminary
22. Avery Menefee, 2005-2007; now at Eagle Precision Casting
23. Brian Harwood, 2004-2006; now at Southwest Steel Casting
24. Robin Thoppil, 2004-2006; now at Bridgestone
25. Gocker (Mike) Daricilar, 2003-2005; UTC Climate Controls & Security
26. Anthony Menning, 2003-2005; now at Kraft Heinz
27. Roy Stevenson, 2003-2005; now at Magma Foundry Technologies
28. Brian Bernard, 2002-2005; now at Mayo Clinic
29. Justin Anderson, 2001-2004; now at Indoshell Precision
30. Trenton Rolling, 1998-2004; now at Intel
31. Kecha Yuenyongwat, 2001-2003
32. Danny Setijono, 2001-2003; PT. Digital Suplai
33. Enayatullah Shaikh, 1997-1999
34. Sameh Al-Shihabi, 1996-1999
35. Shaukat Mahmood, 1997-1999
36. Supapan Sangnui, 1996-1998; now at Prince of Songklu University, Thailand

**M.Eng. Students in Systems Engineering (all were distance education students)**

37. Jeffrey Postal, 2007-2009; now retired from Deere
38. Matthew Sutton, 2006-2008;
39. Travis Auderer, 2006-2007; now at Deere
40. Jessica Sacco, 2003-2005; now a Deere

**D. Service on Graduate Student Committees**

I need to dig to recreate this information. In a typical year, I have been on 1 committee in IMSE, 4 in MSE and 2 from other departments for the last 15 years.

**E. Supervision of Post-Doctoral Students and Professional Staff**

n/a

**F. Supervision of Independent Study and Undergraduate Research**

I do not have this information available, and will take some digging. In a typical year, I have 2-5 undergraduate research assistants. For some of the projects in which I had undergrads embedded at companies and during the years of the Industrial Assessment Center I had many more. I did not track all of their names.

**G. Non-ISU Instruction (e.g. Short Courses, Workshops, Training) [Not sure if all of these are appropriate here]**

1. Improving the Visual Inspection Process, NADCA Webinar, October 2014.
2. Improving the Visual Inspection Process, NADCA Webinar, August 2013.

3. Laser Scanner and Laser Tracker Uses, CIRAS Workshop, September 2011, Ames, Iowa.
4. Lean Manufacturing for Metalcasters, American Foundry Society, July 2011, Bridgman, MI. (Presented 1 day workshop for Corporate Training at B&L Software.)
5. Lean Manufacturing for Metalcasters, American Foundry Society, July 2010, Williamsport, PA. (Presented 2 day workshop)
6. Lean Manufacturing for Metalcasters, American Foundry Society, March 2010, Orlando, FL. (Presented 3 hour workshop)
7. Measurement Error of Radiographic Inspection – Hands On Workshop, Steel Founders' Society of America member workshop, December 12, 2009, Chicago, IL.
8. Lean Manufacturing for Metalcasters, American Foundry Society, November 2009, Spokane, WA. (Presented 2 day workshop)
9. Casting Development Process for DOD Components, Steel Founders' Society of America Workshop, December 2008, Chicago, IL.
10. Manufacturing System Improvements for Metalcasting, Coordinated and presented two day Cast Metals Institute class, November 2007, Monrovia, CA.
11. Energy Efficiency, Metalcasters of Minnesota Workshop, October 2007, St. Paul, MN.
12. Manufacturing System Improvements for Metalcasting, Coordinated and presented two day Cast Metals Institute class, May 2006, Meadville, PA.
13. Rapid Patternmaking, With M. Frank, Steel Founders' Society of America Member Workshop, December 2006, Chicago, IL.
14. Measurement Error of Casting Surface Inspections, Coordinated and attended the Steel Founders' Society of America Membership Workshop, November 2005.
15. Reduction in Variability in Steel Foundry Operations, Steel Founders' Society of America, Southern and Eastern Divisions, Cleveland, OH, August 2005.
16. Instrumentation and Control for Energy Efficiency and Productivity, Steel Founders' Society of America, Research Review Meeting, Chicago, IL, July 2005.
17. Energy Efficiency Instrumentation, Steel Founders' Society of America, Heavy Section Division Meeting, Lafayette, IN, May 2005.

18. Variability Reduction in Steel Casting Operations, ISU Material Science and Engineering Seminar Series, Ames, IA., February 2005.
19. Reduction in Energy Consumption and Variability in Steel Foundry Operations, Steel Founders' Society of America, Research Review Meeting, Iowa City, IA, February 2005.
20. Steel Casting Opportunities, Society of Manufacturing Engineers, SE Iowa Chapter, October 2004.
21. Measurement Error for Visual Inspection of Surfaces, Iowa State University Physical Science/Engineering Statistics VIGRE Meeting, October 2004, (with graduate student Mike Daricilar).
22. How to Improve Your Cleaning Room Operations, Steel Founders Society of America, Southern Division Meeting, September 2004
23. Adding Value through Process Improvement-What is Your Role, American Foundry Society presentation to STEM high school students, Western Michigan Chapter, February 2004.
24. Manufacturing Systems Improvement, Michiana Chapter of American Foundry Society, Plymouth, Indiana, September 2003.
25. Development of Lean Manufacturing Solutions for Metalcasting, Workshop presenter, American Foundry Society – Cast Metals Institute, Des Plaines, IL, January, 2003. {Workshop organizer and presenter}

#### **H. Other Teaching and Student Mentoring Contributions**

Not sure if anything fits here.



## **IV. INSTITUTIONAL SERVICE**

### **A. University-Level Service**

- Director of the Study Abroad Center (75% administrative appointment) 2019-present. This results in the following committees:
  - Study Abroad Risk Management Committee
  - Regent's International Studies Committee
  - Board Member of the ISU – Uganda Program, an NGO
  - Undergraduate Programs Council
  - Council for International Programs
  - Education Abroad Committee
  - ISUAbroad Task Force
- COVID 19 related committees and service
  - Chaired the Study Abroad Workgroup, coordinated emergency evacuations
  - Academic Continuity Workgroup
  - University Health Team
  - Chaired the University Response Team
  - Senior Leadership COVID Group
  - Emergency Operations Center report out
- Co-chair, Credit Transfer Process Task Force, 2020-present
- Academic Standards and Admissions Committee, 2004-2019; Chair, 2012-2019
- Academic Affairs Council, 2012-2019
- All University Judicial Board, 2004-present
- Faculty Marshall for Graduation – Spring 2017 - current
- New Student Programs - Panel member during summer orientation for families of incoming students 2006-2019
- New Student Programs - Facilitator "Your Passport to Success" Destination Iowa State for incoming students, 2008-2009, 2011-2019
- Vice Provost for Research Conflict of Interest Management Committee, 2016-2017
- Ad-Hoc Policy and Procedure Committee to plot strategy prior to new Student ERP system, 2016- 2017, asked by Associate Provost Holger and Registrar Doering to serve
- Ad Hoc committees to hear student-faculty issues that were presented to the Provost; served twice in 2015-2016
- Task force for Catalog redesign project, 2014-2015, asked by Associate Provost Holger and Registrar Doering to serve
- Judicial Affairs Officer Search Committee, 2014-2015
- Academic Integrity Assessment, 2006-2007

### **B. College-Level Service**

- Academic Standards Committee, 2003-present; Chair, 2004-2019
- International Programs Advisory Committee, 2001-2015, 2016-2019  
Committee Co-Chair, 2005-2008

- Exchange Program Coordinator for University of Limerick, 2004-present
- Wind Energy Minor Committee 2009-2016
- CIRAS Technical Manager Search Committee, 2016
- College Wide Faculty Search Committee, 2014-2015
- Budget Advisory Committee, 2009-2012
- Strategic Planning Committee, 2010-2012
- Wind Energy Faculty Search Committee 2010-2011
- CNDE Director Search Committee, 2010-2011
- Energy Systems Educational Initiatives Committee, 2010
- Agricultural and Biosystems Engineering - Faculty Search Committee, 2009-2010
- Exchange Program Coordinator for U. of Strathclyde, 2004-2009
- IMSE Chair Search, 2006-2007
- Differential Tuition Faculty Advisory, 2006-2008
- Engineering Fee Task Force 2002-2006
- IMSE/ME Merger Study 2003-2004
- IMSE DEO Search Committee, 2001
- IMSE Department Study Committee, 2000
- IMSE DEO Review Committee, 1999

### **C. Department-Level Service**

- Space, Facilities Planning and Education Resources Committee, 2000-present
  - Chair, 2000-2015, 2017-2019
- Faculty Mentor to Hantang Qin – 2017- 2019
- Faculty Search Committee Chair – 2016-2017
- Faculty Search Committee Chair - 2014-2015
  - -Temporary lecturer position
  - -Tenure stream position
  - -Lecturers for sales engineering courses
- Fact Finding Committee for M. Frank P&T case – Chair - 2008
- Faculty Mentor to Matthew Frank – 2003-2010
- Sales Engineering Program ‘shepherd’ 2004 - 2009
- Faculty Search – 2002 – 2008; Chair, 2002-2006
- Department Study Committee (to promote department during chair transition) 2006
- Department Chair Evaluation, 2003
- IMSE Department move to Black Engineering Committee, Chair, 1998-00
- Recruiting and Retention Committee, 1996-1999

## V. PROFESSIONAL SERVICE

### A. Editorial and Review Service for Manuscripts

No editorial roles. I have a list of journals I reviewed for but it is going to take more work to pull together and format.

#### Organizing Committee

- American Foundry Society, Casting Congress, Engineering Division Program, 2013
- Design for Manufacturability for Windblades Workshop, Co-organizer and host, November 2012, Ames, IA.
- American Council for Energy Efficiency Economy, Summer Study in Industrial Energy Efficiency, July 2011, Niagara Falls, NY
- IAWIND Wind Energy Symposium, April 2010, Ames, IA
- American Council for Energy Efficiency Economy, Summer Study in Industrial Energy Efficiency, July 2009, Niagara Falls, NY
- ISU 1st Wind Energy Symposium, December 2008, Ames, IA
- ASEE North Central Regional Conference, October 2003, Ames, Iowa

#### Session Chair

- American Foundry Society, Casting Congress, April 2009, Las Vegas, NV
- American Foundry Society, Casting Congress, May 2008, Atlanta GA
- ASEE/IEEE Frontiers in Education, October 2008, Saratoga Springs
- American Foundry Society Cast Expo, May 2002, Kansas City

### B. Service to Professional Societies

- American Foundry Society (AFS)
  - Engineering Division
    - Chair, 2014-2016
    - Vice-Chair, 2012-2014
    - Secretary, 2010-2012
    - Secretary elect, 2008-2010
  - Process and System Improvement Committee
  - Founding member 2014-2018
  - Industrial Engineering Committee
    - Chair, 2006-2008
    - Vice-Chair, 2004-2006
    - Secretary, 2002-2004
- American Welding Society (AWS)
  - Chairperson of Central Iowa Section 1999-2000
  - Vice Chairperson of Central Iowa Section 1997-1999

### C. Grant Review Activities

- Department of Energy, AMO-SBV Proposal Review, November 2015

- Department of Energy SBIR Proposal Review, September 2011
- Department of Energy EPSCOR reviewer, April 2011
- National Science Foundation Proposal Panel Review, June 2010
- National Science Foundation-SBIR Proposal Panel Review, 2005, 2006
- National Science Foundation e-Proposal Review, September 2001
- National Science Foundation Proposal Panel Review, December 2000
- National Science Foundation Proposal Panel Review, October 1999

**D. Government, Educational, or Corporate Advisory Committees**

- Serving as Liaison to ISO Steel Castings Working Group for dimensional tolerance topics in the ISO 8062 standard, 2019- current
- Served as a Subject Matter Expert for the development of International Standards Organization (ISO) standard for dimensional tolerances of molded parts and castings. 1998-2002
- Served as a subject matter expert in the area of manufacturing for DOE report: “Wind Vision: A New Era for Wind Power in the United States,” 2015
- Served on focus group that provided key input to the “2016 Metalcasting Industry Roadmap”