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Houghton, MI 49931-1295 Web: www.mtu.edu/technology/school/faculty/irwin

ACADEMIC APPOINTMENTS

Professor – School of Technology Aug. 2015 – Present

Mechanical Engineering Technology
Michigan Technological University, Houghton, Michigan, USA

Affiliated Professor – College of Sciences and Arts Aug 2010 – Present

Cognitive and Learning Sciences
Michigan Technological University, Houghton, Michigan, USA

Associate Professor – School of Technology Aug. 2006 – 2015

Mechanical Engineering Technology
Michigan Technological University, Houghton, Michigan, USA

Adjunct Faculty – College of Engineering Technology/School of Education Jan. 2004 – 2006

Manufacturing Engineering Technology/Career and Technical Education
Ferris State University, Warren and Flint Campus, Michigan, USA

Professor – Technology Division Aug. 1993 – 2006

Design Engineering Technology
Mott Community College, Flint, Michigan, USA

Adjunct Faculty – Technology Division Aug. 1990 – 1993

Design Engineering Technology
Mott Community College, Flint, Michigan, USA

Instructor Aug. 1988 – 1993

Engineering Computer Drafting
Saginaw Career Complex, Saginaw, Michigan, USA

EDUCATION

Ed.D. in Curriculum and Instruction – GPA: 4.00 Jan. 2002 – Dec. 2005

Wayne State University, Detroit, Michigan, USA

Dissertation: Engaging teachers and students in problem-based simulation activities

Advisor: James Lee Moseley, Associate Professor Emeritus

M.S. in Occupation Education – GPA: 3.87 (Highest Distinction) Dec. 1990 – May 1992

Ferris State University, Big Rapids, Michigan, USA

Thesis: An Investigation into CADD in the Saginaw area from the Viewpoint of Mechanical Drafting and Design Employers

Advisor: Edward Cory, Professor

B.S. in Technical Education – GPA: 3.87 – Highest Distinction Sep. 1982 – May 1987
 Ferris State University, Big Rapids, Michigan, USA
 Supporting Areas of Emphasis: Tool Design & Athletic Coaching

A.A.S. in Mechanical Design Engineering Technology – GPA: 3.45 – Honor Sep. 1980 – May 1982
 Michigan Technological University, Houghton, Michigan

ADMINISTRATIVE ASSIGNMENTS

Director, Research and Innovation in STEM Education (RISE) Institute - Michigan Technological University
 (Aug. 2018 - Present).

Program Chair, School of Technology - Mechanical Engineering Technology - Michigan Technological University
 (Aug. 2008 - Present).

Program Chair, School of Technology - Industrial Technology - Michigan Technological University
 (Aug. 2006 - May 2010).

Program Coordinator, Technology Division - Manufacturing Simulation Technology - Mott Community College.
 (Aug. 2002 - May 2006).

Program Coordinator, Technology Division - Design Engineering Technology, Mott Community College.
 (Aug. 1998 - May 2002).

Al araje, Abdul Nasser Sayer (Principal), Hembroff, Guy Charles (Co-Principal), **Irwin, John Lawrence (Co-Principal)**, Azizi, Seyyedmohsen (Co-Principal), Meadows, Lorelle Annise (Co-Principal), "Engineering Technology Scholars - IMPROVING RETENTION and Student Success (ETS-IMPRESS)," Sponsored by National Science Foundation. **Amount Awarded: \$999,483** Project Dates: January 1, 2018 - September 30, 2022. Date Submitted: March 29, 2017.

Dare, Emily A (Principal), **Irwin, John (Co-Principal)**, Ellis, Joshua A (Co-Principal), "Engaging Students in Physical Science," Sponsored by Michigan Dept of Education, **Amount Awarded: \$116,790** Project Dates: March 28, 2016 - September 30, 2017. Date Submitted: May 13, 2016.

Irwin, John L (Principal) Hungwe, Kedmon Nyasha (Co-PI) Schrank, Amy J (Co-PI) "Improving Teacher Quality - Educators' Professional Development Institute Series (EPDIS) - Biological Sciences" sponsored by Michigan Dept of Education, **Amount Awarded: \$212,026** Project Dates: 04/2013 - 09/2014. Date Submitted: January 2013.

Irwin, John L (Principal), Hungwe, Kedmon Nyasha (Co-Principal), Meyer, Michael R (Co-Principal), Oppliger, Douglas Edward (Co-Principal), Charlesworth, Paul (Co-Principal), "Improving Teacher Quality - Educators' Professional Development Institute Series (EPDIS) Physical Sciences - Physics and Chemistry," Sponsored by Michigan Dept of Education, **Amount Awarded: \$196,557.84.** Project Dates: May 1, 2009 - September 30, 2010. Date Submitted: August 31, 2009.

HONORS, AWARDS AND SCHOLARSHIPS**Teaching**

Curriculum Development and Assessment Award, Michigan Tech CTLFD.	October, 2018
Deans' Teaching Showcase member, Michigan Tech CTLFD.	March, 2018
Undergraduate Expo Senior Project, Poster Award, Michigan Tech.	April, 2012
Undergraduate Expo Senior Project, Poster Award, Michigan Tech.	April, 2009
CTLFD Mini Grant Recipient, Michigan Tech CTLFD.	October, 2007

Industry

3Q PACE SpacePilot Grant, PACE/3DConnexion.	August 26, 2009
2Q PACE SpacePilot grant, PACE/3DConnexion.	June 9, 2009
NAIT Mini Grant, National Association of Industrial Technology.	November 12, 2007
University Faculty Scholarship, Autodesk, Inc.	November 27, 2007

Academia

Top Paper in Manufacturing Division, ATMAE.	September 12, 2014
Top Paper in Manufacturing Division, ATMAE.	August 21, 2013

TEACHING EXPERIENCE**Michigan Technological University****2006 – Present**

ED 5510, Spec Studies in Educ Tech, 1 course.
 ED 5670, Prof Dev: Tchg Technology, 1 course.
 ED 5900, Graduate Research in Education, 2 courses.
 ENG 5100, The Engineering Process, 8 courses.
 ENG 5200, Engg Apps Physical Sciences, 4 courses.
 MEEM 5990, Special Topics, 6 courses.
 MET 2120, Statics & Strength of Material, 6 courses.
 MET 2153, Machine Tool Funds & Apps, 1 course.
 MET 2400, Parametric Modeling, 56 courses.
 MET 4460, Product Design and Development, 28 courses.
 MET 4550, Computer Aided Manufacturing, 18 courses.
 MET 4575, Senior Project I, 1 course.
 MET 4580, Facilities Planning & Layout, 2 courses.
 MET 4660, CAE and FEA Methods, 19 courses.
 MET 4670, Senior Project, 21 courses.
 MET 4996, Design 1, 2 courses.
 MET 4997, Large Scale 3D Printer Project, 1 course.
 MET 4999, Professional Practice Seminar, 4 courses.
 TE 4000, Independent Study in Tech, 4 courses.
 TE 4998, Undergrad Res in Technology, 2 courses.
 TE 5000, Stratasys Post Processing, 1 course.
 TE 5001, 3D Printed Part Optimization, 7 courses.
 UN 1001, Perspectives on Inquiry, 6 courses.

Ferris State University**2004-2006**

Instructional Planning and Practice
Pre-Student Teaching Field Experience
Curriculum Design and Evaluation
Foundations of Education
Principles of Teaching and Learning

Mott Community College**1990-2006**

Blueprint Reading, Drft-170
Graphics For Engineers, Drft179
Introduction to CADD, CADD-185
Advanced Topics in CAD, CADD-186
UNIGRAPHICS-Basic Modeling and Drafting, CADD-187
UNIGRAPHICS-Advanced Modeling, CADD 188
UNIGRAPHICS-Drafting, CADD-189
Applied Layout, DDES-270
Descriptive Geometry, DDES-271
Fig, Fixture, Gage and Die Design, DDES-274

CONSULTING

Training/Education, 3D4EDU, LLC, Sault St Marie, Michigan. (June 27, 2016 - June 30, 2016). Compensated

Training/Education, 3D4EDU, LLC, Iron Mountain, Michigan. (June 20, 2016 - June 23, 2016). Compensated

Training/Education, 3D4EDU, LLC, Hancock, Michigan. (June 13, 2016 - June 16, 2016). Compensated

Training/Education, 3D4EDU, LLC, Troy, Michigan. (June 21, 2015 - June 25, 2015). Compensated

Academic, Michigan Department of Education, Detroit, Michigan. (September 2013 - October 2013). Pro Bono

Technical/Professional Work, Meritor Corporation, Troy, Michigan. (February 13, 2013 - May 10, 2013).
Compensated

Training/Education, ASEE/Siemens Go PLM, Boston, Mass. (September 28, 2012 - September 30, 2012).
Compensated

Academic, CCISD, Calumet, Michigan. (September 2011 - April 2012). Compensated

Technical/Professional Work, Pine Mountain Music Festival, Hancock, Michigan. (June 2011 - July 2011).
Compensated

Training/Education, NSF/Mott Community College, Mott Community College/Sinclair Community College. (June
2006 - August 2006). Compensated

Technical/Professional Work, NSF/Mott Community College, Mott Community College. (August 1, 2001 - July 31,
2006). Compensated

Training/Education, Workforce Development Act/Mott Community College, Mott Community College. (June
2003 - June 2006). Compensated

Training/Education, NSF/Mott Community College/Tech Prep, Mott Community College. (June 1999 - June
2006). Compensated

RESEARCH AND INDUSTRY EXPERIENCE

Education and Training Specialist, Irwin Technical Training, Inc.	May, 1994 - Present
Computer Simulation Specialist ICRC Engineering, TACOM/TARDEC. Warren, Michigan, USA	July, 1998 - Sept., 1998
Designer Part-Time/Process Engineering Department, Thomson Saginaw Ball Screw Company, Saginaw, Michigan, USA.	Jan., 1989 - Sept., 1993
Senior Designer Sigma Air Conditioning Inc. (presently known as: AITransit), Chicago, Illinois, USA.	June, 1986 - Aug., 1988
Layout Drafter Thermotron Industries, Holland, Michigan, USA.	May, 1984 - May, 1986

PUBLICATIONS**Book Chapters**

2017. Irwin, J. L. 3D Printing Implications for STEM education. Chapter 40 - 3D Printing Handbook: Product Development for the Defense Industry. Boca Raton, FL: Taylor and Francis/CRC Press. (Published)

Peer Reviewed Journal Papers

2013. Irwin, J. L. Wind Turbine Blade CAD Models used as Scaffolding Technique to Teach Design Engineers. In Robert Chin, Amy Hamlin (Ed.), (No 2 ed., vol. 77, pp. 17). Greenville, NC: Engineering Design Graphics Journal. <http://www.edgj.org/index.php/EDGJ/article/viewFile/362/260>. (Published)

2013. Alexandra, G. G., Wittbrodt, B. T., Laureto, J. X., Anzalone, G. C., Oppliger, D. E., **Irwin, J. L.**, Pearce, J. M. Life-Cycle Economic Analysis of Distributed Manufacturing with Open-Source 3-D Printers. In M. Steinbuch (Ed.), (6th ed., vol. 23, pp. 713-726). Elsevier: Mechatronics Journal. <http://dx.doi.org/10.1016/j.mechatronics.2013.06.002>. (Published)

2010. Irwin, J. L. Graphics Course Formative Feedback and Teaching Innovation Using Screen Capture Technology. (3rd ed., vol. 10). Technology Interface Journal. technologyinterface.nmsu.edu/Spring10/. (Published)

Peer Reviewed Conference Papers

2019. Dare, E. A., Ellis, J. A., **Irwin, J. L.** Making an impact with professional development: Understanding changes in science teachers' engineering self-efficacy and practice. *NARST 2019 International Conference*. (Accepted)

2019. Irwin, J. L. Utilizing Parametric 3D Solid Modeling to Illustrate Statics and Strength of Materials Concepts. *ATMAE Annual Conference* (pp. pages 146 - 152). Kansas City, Missouri: ATMAE 2018 Conference Proceedings. (Published)
<https://www.dropbox.com/s/mgrxdc35kz9yu8m/ATMAE%202018%20Conf%20Proceedings%20%28web%29%20Finalv2.pdf?dl=0>.

2018. *Deshpande, S. P., Kulkarni, S., Shah, S., Irwin, J. L.* Developing an Open Source Affordable Large-Scale Polar Configuration 3D Printer. *6th IAJC International Conference*. (Published)

- 2018. Irwin, J. L.,** Mehendale, S. "Simulations and Manipulatives used to Better Understand Graphics, Statics & Dynamics Concepts" ASEE Engineering Design Graphics Division 72nd Midyear Conference Proceedings, Jamaica, (pp. 9). (Published)
- 2016. Deshpande, S. P.,** Rao, N., Pradhan, N., **Irwin, J. L.** Hybrid Additive Manufacturing of a Darrieus Type Vertical Axis Wind Turbine Design to Improve Power Generation Efficiency. (pp. 10). Phoenix, Arizona: ASME/International Mechanical Engineering Conference and Exhibition. (Published)
- 2016. Pradhan, N. K., Irwin, J. L.,** Badarmanahalli, R., Harsha, S. Design and Fabrication of the Power Transmission System of a Large Scale 3d Printer. (pp. 10). Orlando, Florida: Association of Technology, Management, and Applied Engineering. (Published)
- 2015. Irwin, J. L.,** Kasture, P. V., Deole, P. Case Study using Open Source Additive Manufacturing (AM) Technology for Improved Part Function. Houston, Texas: ASME/International Mechanical Engineering Conference and Exhibition. (Published)
- 2015. Mehendale, S. S., Irwin, J. L.,** Marlor, R. An Interactive Dynamics Learning Course. 2015 ASEE Annual Conference and Exposition, Seattle, WA, USA, June 14-17, 2015. (Published)
- 2015. Irwin, J. L.,** Pearce, J. M., Anzalone, G., Oppliger, D. E. Evaluation of RepRap 3D Printer Workshops in K-12 STEM. Seattle, Washington: ASEE Annual Conference & Exposition Proceedings. (Published)
- 2014. Irwin, J. L.,** Garg, A. A Study of Temperature and Humidity Effects on Desktop 3D Printers. (pp. 1). St. Louis, Missouri: Association of Technology, Management, and Applied Engineering. (Published)
- 2014. Irwin, J. L.,** Pearce, J. M., Anzalone, G., Oppliger, D. E. The RepRap 3-D Printer Revolution in STEM Education. (pp. 13). Indianapolis, Indiana: ASEE Annual Conference & Exposition Proceedings. <http://www.asee.org/public/conferences/8/papers/5035/view>. (Published)
- 2013. Irwin, J. L.,** Pearce, J. M., Anzalone, G. Implementing Self-Replicating Rapid Prototypers (RepRaps) into a Mechanical/Manufacturing Program. (pp. 20). New Orleans, Louisiana: Association of Technology, Management, and Applied Engineering. http://c.ymcdn.com/sites/www.atmae.org/resource/resmgr/event_materials/2013_conf_proc.pdf. (Published)
- 2012. Irwin, J. L.** Classroom Inquiry and Graphics Technology Skills for K-12 STEM Physical Science Educators. (pp. 7). Limerick: ASEE Engineering Design Graphics Division. http://www.edgj.org/index.php/EDGJ/article/viewFile/362/260/67th%20Midyear/Paper%20Presentations%20-%20Session%201/Classroom%20Inquiry%20and%20Graphics%20Technology%20Skills%20for%20K-12%20STEM%20Physical%20Science%20Educators_Irwin_67th%20EDGD%20Proceedings.pdf. (Published)
- 2012. Irwin, J. L.,** Clark, M. M. Being the Next Steve Jobs Without Offshoring – MTEC SmartZone. (pp. 114-118). Nashville, Tennessee: Association of Technology, Management, and Applied Engineering. https://c.ymcdn.com/sites/atmae.site-ym.com/resource/resmgr/event_materials/atmae2012confproc.pdf. (Published)
- 2012. Irwin, J. L.,** Wanless, D. D., Wagner, S. W., Sanders, P. G. Engineering Technology Interdisciplinary Projects. (pp. 13). San Antonio, Texas: ASEE Annual Conference & Exposition Proceedings. <http://www.asee.org/public/conferences/8/papers/5035/view>. (Published)
- 2009. Irwin, J. L.,** Al araje, A. N. S. ABET Accreditation: Resolving a Weakness or Concern. (pp. 13). Austin, Texas: ASEE Annual Conference & Exposition Proceedings. (Published)

2009. Al araje, A. N. S., **Irwin, J. L.** The Electrical Engineering Technology Program. (pp. 14). ASEE Annual Conference & Exposition Proceedings. (Published)
2008. **Irwin, J. L.** Graphics Course Formative Feedback and Teaching Innovation Using Screen Capture Technology. (Paper 089, ENT207 ed., pp. 12). Nashville, Tennessee: 2008 IAJC-IJME International Conference on Engineering & Technology: www.ijme.us/cd_08/PDF/89%20ENT%20207.pdf. (Published)
2008. **Irwin, J. L.** Three-way Comparison Used to Reinforce FEA Solutions. (pp. 10). Platteville, Wisconsin: 2008 ASEE North Midwest Section Conference. www.ndsu.nodak.edu/asee/conferences/2008/papers/Irwin.pdf. (Published)
2008. Wanless, L. S., **Irwin, J. L.**, Amos, S. J., Wanless, D. D. To Build a Better Bottle Opener: Interweaving a Project Through the Engineering Technology Curriculum. (pp. 19). Pittsburgh, Pennsylvania: 2008 ASEE Annual Conference & Exposition Proceedings. (Published)
2007. **Irwin, J. L.** Teaching Design Engineering Technology: Experiential Learning Activities. (pp. 8). Houghton, Michigan: 2007 ASEE North Midwest Section Conference. www.ndsu.nodak.edu/asee/conferences/2007/proceedings/Irwin_ExperientialLearning.pdf. (Published)
2007. **Irwin, J. L.** Embedded Design in Parametric Modeling, and CAM. (AC 2007-1472 ed., pp. 9). Honolulu, Hawaii: ASEE Annual Conference & Exposition. (Published)
2007. **Irwin, J. L.** Senior Project Course Enhancement. (AC 2007-1413 ed., pp. 15). Honolulu, Hawaii: 2007 ASEE Annual Conference & Exposition. (Published)
2006. **Irwin, J. L.** MTU MICUP Program and Industrial Technology Recruitment Efforts - Advancing Innovations 2006 Presentation. (MERC ID: S0600316 ed.). Tampa, Florida: Advancing Innovations in Engineering Technology: Ideas for a New Age. www.merconline.net/view_abstract.php?id=538. (Published)
2006. **Irwin, J. L.**, Moseley, J. L. Engaging Teachers and Students in Problem-based Simulation Activities. (2006-252 ed., pp. 12). Chicago, Illinois: 2006 ASEE Annual Conference & Exposition. (Published)
2006. **Irwin, J. L.** Engaging Teachers and Students in Problem-based Simulation Activities. Atlanta, Georgia: 2006 Innovations Conference. www.league.org/i2006/program/. (Published)
2005. **Irwin, J. L.** Engaging Teachers and Students in Problem-based Simulation Activities. (MERC ID: S0600185 ed.). San Diego, California: Advanced Innovations in Engineering Technology. www.merconline.net/view_abstract.php?id=448. (Published)

Conference Abstract

2018. **Irwin, J. L.** Importance of the Affective Domain in Learning: Objectives, Strategies, Evaluation, and Theory Support for Implementation. *Upper Peninsula Teaching and Learning Conference*. Marquette, Michigan: Upper Peninsula Teaching and Learning Conference. (Published)
2015. **Irwin, J. L.** Optimizing Part Design for Consumers using Open Source AM Technology. (pp. 1). Pittsburgh, Pennsylvania: Association of Technology, Management, and Applied Engineering. (Published)
2008. **Irwin, J. L.** Teaching Tidbits - Quick Hits on What Works. Nashville, Tennessee: 2008 NAIT Convention. (Published)
2007. **Irwin, J. L.** Enhancement of CAM Course using Emulation Software. (pp. 10). Panama City Beach, Florida: 2007 NAIT Convention. (Published)

2007. Irwin, J. L. Senior Design Project Parametric Modeling and Simulation Analysis. Atlanta, Georgia: 44th National Conference on Technical Education. (Published)

2006. Irwin, J. L. Engaging Teachers and Students in Problem-based Simulation Activities. Louisville, Kentucky: ATEA 43rd National Conference on Technical Education. (Published)

Magazine/Trade Publication

2013. Irwin, J. L., Clark, M. A Model for Job Creation in US Manufacturing. Sarah Webster, Editor in Chief, SME (Ed.), Dearborn, Michigan: Manufacturing Engineering Media - Society of Manufacturing Engineers. <http://www.sme.org/MEMagazine/Article.aspx?id=72415&taxid=1434>. (Published)

2010. Irwin, J. L., Nutter, P., Kirby, D. Online Simulation Tools for Advanced Manufacturing Workforce Development Needs – Lessons Learned in Higher Education. (pp. 9): Manufacturing Engineering, SME. (Published)

Technical Report

2008. Irwin, J. L. Enhancement of CAM Course using 3D Emulation Software. (pp. 7). Bloomfield, Michigan: Immersive Engineering, Inc. (Published)

PRESENTATIONS GIVEN

Irwin, J. L., (Presenter & Author), ATMAE Annual Conference, "Utilizing Parametric 3D Solid Modeling to Illustrate Statics and Strength of Materials Concepts" Association of Technology, Management and Applied Engineering, Kansas City, Missouri. (November 8, 2018).

Irwin, J. L., (Presenter & Co-Author), 6th IAJC Conference Proceedings, "Developing an Open Source Affordable Large-Scale Polar Configuration 3D Printer" INTERNATIONAL ASSOCIATION OF JOURNALS AND CONFERENCES, Orlando, Florida. (October 12, 2018).

Irwin, J. L., (Presenter & Author), MTU Center for Teaching & Learning, "CTL Instructional Award Presentation Series - John Irwin: "Assessment, and Testing, and Grading... Oh My!"," Michigan Technological University, Houghton, MI, United States. (September 20, 2018).

Irwin, J. L., (Presenter & Author), Upper Peninsula Teaching and Learning Conference, "Importance of the Affective Domain in Learning: Objectives, Strategies, Evaluation, and Theory Support for Implementation" Northern Michigan University/Michigan Tech, Marquette, Michigan. (May 11, 2018).

Irwin, J. L., (Presenter & Co-Author), 2018 ASEE EDGD Midyear Conference, "Simulations and Manipulatives used to Better Understand Graphics, Statics & Dynamics Concepts" ASEE Engineering Design Graphics Division, Montego Bay, Jamaica. (January 5, 2018).

Irwin, J. L. (Presenter & Author), ASME 2016 International Mechanical Engineering Congress & Exposition, "Hybrid Polymer Additive Manufacturing of a Darrieus Type Vertical Axis Wind Turbine Design to Improve Power Generation Efficiency" ASME, Phoenix, Arizona. (November 17, 2016).

Irwin, J. L. (Presenter & Author), ASME 2015 International Mechanical Engineering Congress & Exposition, "Case Study Using Open Source Additive Manufacturing (AM) Technology for Improved Part Function" ASME, Houston, Texas. (November 17, 2015).

- Irwin, J. L. (Presenter & Author), 2015 ATMAE Conference, "*Optimizing Part Design for Consumers using Open Source AM Technology*" ATMAE, Pittsburg, Pennsylvania. (November 13, 2015).
- Irwin, J. L. (Presenter & Author), 2015 ASEE Annual Conference & Exposition, "*Evaluation of RepRap 3D Printer Workshops in K-12 STEM*" ASEE, Seattle, Washington. (June 15, 2015).
- Irwin, J. L. (Moderator), Abell, J. (Panelist), Nutter, P. (Panelist), Zargari, A. (Panelist), Posinasetti, N. R. (Panelist), 2014 ATMAE Conference, "*Tools for improving manufacturing technical and management programs for ATMAE accreditation that include using the SME Four Pillars of Manufacturing Knowledge*" ATMAE, St. Louis, Missouri. (November 21, 2014).
- Irwin, J. L. (Presenter & Author), Garg, A. (Presenter & Author), 2014 ATMAE Conference, "*A Study of Temperature and Humidity Effects on Desktop 3D Printers*" ATMAE, St Louis, Missouri. (November 20, 2014).
- Irwin, J. L. (Presenter & Author), 2014 ASEE Annual Conference & Exposition, "*The RepRap 3-D Printer Revolution in STEM Education*" ASEE, Indianapolis, Indiana. (June 16, 2014).
- Irwin, J. L. (Panelist), Flannigan, R. (Panelist), Nutter, P. (Panelist), Mack, R. (Moderator), 2013 ATMAE Conference, "*Common Cause to Develop Tomorrow's Workforce – A Panel Discussion on Manufacturing Education, Academia and Industry*" ATMAE, New Orleans, Louisiana. (November 21, 2013).
- Irwin, J. L. (Presenter & Author), 2013 ATMAE Conference, "*Implementing Self-Replicating Rapid Prototypers (RepRaps) into a Mechanical/Manufacturing Program*" ATMAE, New Orleans, Louisiana. (November 19, 2013).
- Irwin, J. L., PACE Annual Forum, "*NX FEA Methods for EcoCAR2 Challenge Participants*" Siemens, Pasadena, California. (July 25, 2013).
- Irwin, J. L., CLK Schools In Service for Teachers and Staff, "*Safety in Schools*" Public Schools of Calumet, Laurium & Keweenaw, CLK School Commons, Calumet, Michigan. (January 9, 2013).
- Irwin, J. L. (Presenter & Author), 2012 ASEE EDGD Mid-Year Conference, "*Classroom Inquiry and Graphics Technology Skills for K-12 STEM Physical Science Educators*" ASEE, Limerick, Ireland. (November 19, 2012).
- Irwin, J. L. (Presenter & Author), 2012 ATMAE Conference, "*Being the Next Steve Jobs Without Offshoring – MTEC SmartZone*" ATMAE, Nashville, Tennessee. (November 16, 2012).
- Irwin, J. L. (Presenter & Author), 2012 ASEE Annual Conference & Exposition, "*Engineering Technology Interdisciplinary Projects*" ASEE, San Antonio, Texas. (June 11, 2012).
- Irwin, J. L. (Presenter & Author), Americas User Conference 2012, "*Summer Youth CAM Program, How it's Made: Art to Part*" Siemens PLM Connections, Las Vegas, Nevada. (May 8, 2012).
- Irwin, J. L. (Presenter & Author), 2011 ATMAE Conference, "*Interdisciplinary Service Opportunities for Technology Students*" ATMAE, Louisville, Kentucky. (November 11, 2011).
- Irwin, J. L. (Presenter & Author), 2011 ATMAE Conference, "*Design, Manufacture and Utilization of a Low Cost CNC Router*" ATMAE, Louisville, Kentucky. (November 10, 2011).
- Irwin, J. L. (Presenter & Author), Americas User Conference 2011, "*Utilizing Expressions for Developing Parametric Wind Turbine Blade Models*" Siemens PLM Connections, Las Vegas, Nevada. (May 4, 2011).
- Irwin, J. L. (Presenter & Author), 2010 ATMAE Conference, "*A Methodology for Developing Wind Turbine Blade Parametric Models*" ATMAE, Panama City Beach, Florida. (October 28, 2010).

- Irwin, J. L. (Presenter & Author), 2010 ATMAE Conference, "*Classroom Inquiry and Technology to Improve Teaching and Student Learning*" ATMAE, Panama City Beach, Florida. (October 28, 2010).
- Irwin, J. L. (Presenter & Author), 2009 ATMAE Conference, "*Horizontal vs. Vertical Axial Flux Wind Turbine Design and Manufacture*" ATMAE, Louisville, Kentucky. (November 13, 2009).
- Irwin, J. L. (Author Only), Al araje, A. N. S. (Co-Author), 2009 ASEE conference, "*ABET Accreditation: Resolving a Weakness or Concern*" ASEE -, Austin, TX, USA. (June 2009).
- Irwin, J. L. (Presenter & Author), 2008 IAJC-IJME international conference, "*Graphics Course Formative Feedback and Teaching Innovation Using Screen Capture Technology*" IAJC-IJME, Nashville, Tennessee. (November 2008).
- Irwin, J. L. (Presenter & Author), 2008 NAIT Convention, "*Teaching Tidbits - Quick hits on what works*" NAIT, Nashville, Tennessee. (November 2008).
- Irwin, J. L. (Presenter & Author), 2008 ASEE North Midwest Section Conference, "*Three-way Comparison used to Reinforce FEA solutions*" ASEE, Platteville, Wisconsin. (October 2008).
- Irwin, J. L. (Presenter & Author), 2008 ASEE Annual Conference & Exposition, "*To Build a Better Bottle Opener: Interweaving a Project Through the Engineering Technology Curriculum*" ASEE, Pittsburgh, Pennsylvania. (June 2008).
- Irwin, J. L. (Presenter & Author), 2007 NAIT Convention, "*Enhancement of CAM Course using Emulation Software*" NAIT, Panama City Beach, Florida. (October 2007).
- Irwin, J. L. (Presenter & Author), 2007 ASEE North Midwest Section Conference, "*Teaching Design Engineering Technology: Experiential Learning Activities*" ASEE, Houghton, Michigan. (September 2007).
- Irwin, J. L. (Presenter & Author), 2007 ASEE Annual Conference & Exposition, "*Embedded Design in Parametric Modeling and CAM*" ASEE, Honolulu, Hawaii. (June 2007).
- Irwin, J. L. (Presenter & Author), 2007 ASEE Annual Conference & Exposition, "*Senior Project Course Enhancement*" ASEE, Honolulu, Hawaii. (June 2007).
- Irwin, J. L. (Presenter & Author), Advancing Innovations in Engineering Technology: Ideas for a New Age., "*MTU MICUP Program and Industrial Technology Recruitment Efforts - Advancing Innovations 2006 Presentation*" NJCATE, NCME, and MATEC, Tampa, Florida. (November 2006).
- Irwin, J. L. (Presenter & Author), 2006 ASEE Annual Conference & Exposition, "*Engaging Teachers and Students in Problem-based Simulation Activities*" ASEE, Chicago, Illinois. (June 2006).
- Irwin, J. L. (Presenter & Author), 2006 Innovations Conference, "*Engaging Teachers and Students in Problem-based Simulation Activities*" League for innovations in the community college, Atlanta, Georgia. (March 2006).
- Irwin, J. L. (Presenter & Author), ATEA 43rd National Conference on Technical Education, "*Engaging Teachers and Students in Problem-based Simulation Activities*" ATEA, Louisville, Kentucky. (March 2006).
- Irwin, J. L. (Presenter & Author), Advancing Innovations in Engineering Technology, "*Engaging Teachers and Students in Problem-based Simulation Activities*" NJCATE, NCME, and MATEC, San Diego, California. (November 2005).

ADVISING

Doctoral Student Advising

Doctoral Advisory Committee Member, Electrical & Computer Engrg. (May 11, 2015 - April 28, 2017).
Advised: Yuenyong Nilsiam

Doctoral Advisory Committee Member, Humanities. (September 3, 2013 - December 22, 2017).
Advised: Amanda Girard

Master Student Advising

Masters' Advisory Committee Member, Cognitive & Learning Sciences. (September 5, 2017 - August 16, 2019).
Advised: Janet Lalonde

Masters' Advisory Committee Member, Cognitive & Learning Sciences. (January 9, 2017 - August 16, 2019).
Advised: Eric Marshall

Masters' Advisory Committee Member, Cognitive & Learning Sciences. (May 11, 2015 - May 3, 2019).
Advised: Jason Howes

Masters' Advisory Committee Member, Cognitive & Learning Sciences. (May 12, 2014 - May 3, 2019).
Advised: Katelyn McCarthy

Masters' Advisory Committee Member, Mechanical Eng - Eng Mechanics. (May 11, 2015 - December 22, 2017).
Advised: David Leach

Masters' Advisory Committee Member, Mechanical Eng - Eng Mechanics. "Mechanical Testing of Fused Filament 3-D Printed Components for Distributed Manufacturing" (August 31, 2015 - August 12, 2016).
Advised: Nagendra Gautam Tanikella

Masters' Advisory Committee Member, Materials Science & Engrg. (September 3, 2013 - December 19, 2014).
Advised: Benjamin Wittbrodt

Masters' Advisory Committee Member, Mechanical Eng - Eng Mechanics. "A Study of Acoustic Cavity Boom Generation Due to Vibro- Acoustic Coupling in Passenger Cars" (September 4, 2012 - December 19, 2014).
Advised: Mayuresh Pathak

Masters' Advisory Committee Chair, Cognitive & Learning Sciences. "On the Effect of Virtual Reality on Student Understanding of and Interest in Physics" (May 13, 2013 - August 15, 2014).
Advised: Isaac Crouch

Masters' Advisory Committee Member, Mechanical Eng - Eng Mechanics. "A Study of Passenger Car Acoustic Cavity Boom Simulation Methods" (January 9, 2012 - May 2, 2014).
Advised: Shreerang Dhabe

Masters' Advisory Committee Member, Cognitive & Learning Sciences. (May 10, 2010 - December 16, 2011).
Advised: Tony Schwaller

Masters' Advisory Committee Member, Cognitive & Learning Sciences. "Teaching and Aligning Upper Level Mathematics Classes to Michigan High School Content Expectations in an Alternative Education Setting: Approaches and Issues" (January 14, 2008 - August 13, 2010).
Advised: Sarah Van Baale

Masters' Advisory Committee Member, College of Engineering. "A Modified Hotelling T2 Multivariate Control

Chart for Enhanced Assembly Fixture Fault Detection" (May 29, 2008 - July 29, 2008).

Advised: Jeremy L. Rickli

Masters' Advisory Committee Member, Mechanical Engineering. "Enhanced Dimension-Reduction (EDR) Method for Quality and Sensitivity-Free Reliability Assessment" (May 29, 2008 - July 29, 2008).

Advised: Lee Wells

SERVICE**College/School**

Special Institutional Assignment, ABET ETAC MET Self-Study Report. (September 2016 - Present).

Committee Chair, School Tenure Promotion & Reappointment. (August 1, 2015 - Present).

Student Recruiter, Open House - Tech Showcase. (September 2006 - Present).

Committee Member, School of Technology Council. (August 2006 - Present).

Student Recruiter, Spring Prospective Student Program Fair. (March 2006 - Present).

Committee Chair, School Tenure Promotion & Reappointment. (August 1, 2010 - September 1, 2014).

Committee Chair, MET Faculty Search Committee, School of Technology. (October 2011 - March 2012).

Special Institutional Assignment, ABET TAC MET Self-Study Report. (April 2011 - June 2011).

Committee Chair, Facilities Operations Manager Search Committee, School of Technology. (December 2010 - January 2011).

Committee Member, Dean Search Committee, School of Technology. (April 2010 - January 2011).

Committee Member, School of Technology faculty search committee - INT. (April 2007 - May 2007).

Department

Committee Chair, Mechanical Engineering Technology Program Curriculum Committee. (August 2007 - Present).

Program Coordinator, Siemens Go PLM NX8.5 Certification Exam. (January 2014 - April 2014).

Program Coordinator, PACE Student Course Competition. (January 2014 - April 22, 2014).

Committee Chair, Industrial Technology Program Curriculum Committee. (August 2006 - April 2011).

Professional

Engineering Technology Accreditation Delegate, SME/ABET 2018 Fall Governance Meeting. (November 2, 2018).

Proposal Panel Reviewer, NSF Review Panelist. (May 2018).

Board Member, SME/ABET 2018 Spring Governance Meeting. (March 22, 2018 - March 23, 2018).

Board Member, SME/ABET 2017 Fall Governance Meeting. (October 20, 2017 - October 21, 2017).

(March 30, 2017 - April 2, 2017). Board Member, ABET ETAC Area Delegation.
Program Session Moderator, IMECE. (November 15, 2016).

Program Session Moderator, IMECE. (November 17, 2015).

Conference Track Organizer, ATMAE - Manufacturing Division. (April 2014 - November 2014).

Program Session Moderator, 2014 ASEE Annual conference and exposition. (June 1, 2014 - June 30, 2014).

Conference Track Organizer, ATMAE - Manufacturing Division. (April 2013 - November 2013).

Robot Fabrication/Innovation Judging, ATMAE Student Robot Competition. (November 14, 2012 - November 15, 2012).

Program Session Moderator, 2012 ASEE Annual conference and exposition. (June 1, 2012 - June 30, 2012).

Robot construction Judging, NAIT Student Robot Competition. (November 19, 2008 - November 20, 2008).

Program Session Moderator, 2008 ASEE Annual conference and exposition. (June 1, 2008 - June 30, 2008).

Public/Community

Faculty Tenure Reviewer, Ohio University. (November 1, 2018 – November 19, 2018).

Faculty Tenure Reviewer, Oklahoma State University. (December 1, 2017 - December 23, 2017).

Faculty Tenure Reviewer, Indiana State University. (November 1, 2017 - November 21, 2017).

Faculty Tenure Reviewer, University of North Texas. (August 1, 2017 - September 25, 2017).

Faculty Tenure Reviewer, University of Akron. (August 23, 2016 - September 10, 2016).

Faculty Tenure Reviewer, SUNY Polytechnic Institute (SUNY Poly). (March 9, 2016).

Faculty Tenure Reviewer, East Carolina University. (July 1, 2015).

Judge, Western UP Science Fair. (March 29, 2009 - March 30, 2009).

Judge, Western UP Science Fair. (March 1, 2008 - March 5, 2008).

Judge, National Science Olympiad. (March 2004 - March 2006).

Flint Area Chamber of Commerce. (February 2003 - February 2006).

Student Organization

Faculty Advisor, Epsilon Pi Tau Honor Society Delta Zeta Chapter. (November 2007 - Present).

Faculty Advisor, Sigma Tau Gamma Fraternity. (September 2006 - Present).

Faculty Advisor, Flint Track Club. (January 2003 - January 2006).

Committee Member, University Assessment Council. (September 1, 2012 - Present).

Participant, Graduation, Winter Graduation Faculty Representative. (December 2006 - Present).

Workshop Organizer, Explorations Session. (October 2006 - Present).

Graduate faculty, Graduate School. (September 25, 2006 - Present).

Judge, PACE Student Course Competition. (December 17, 2013 - December 18, 2013).

Committee Member, University Senate Academic Policy Committee. (September 2006 - September 2013).

University Senate Service, University Senate Representative, School of Technology. (September 2010 - August 2013).

Summer Pre-College Program Involvement, Tech Summer Youth Program. (July 16, 2012 - July 20, 2012).

Summer Pre-College Program Involvement, Tech Summer Youth Program. (July 2010 - August 2010).

WIE/ESP/PURSE. (June 6, 2010 - July 7, 2010).

University Senate Service, University Senate School of Technology Alternate. (September 2006 - April 2010).

Summer Pre-College Program Involvement, Tech Summer Youth Program. (July 2009 - August 2009).

WIE/EIE. (June 6, 2009 - July 9, 2009).

Summer Pre-College Program Involvement, Tech Summer Youth Program. (July 2008 - August 2008).

Committee Member, University Assessment Council. (September 2006 - September 2007).

PROFESSIONAL AFFILIATIONS

Chair, Accreditation and Education Committee, Society of Manufacturing Engineers. (January, 2019 - Present).

Accreditation Committee Member, Society of Manufacturing Engineers. (January 30, 2013 - Present).

Member-Engineering Design Graphics Division, American Society of Engineering Educators. (June 2012 - Present).

National Science Teachers Association. (January 27, 2016 - 2017).

Member-Graphics & Manufacturing Divisions, Association of Technology, Management and Applied Engineering. (December 8, 2009 - 2017).

Senior Member, Society of Manufacturing Engineers. (August 1, 2009 - Present).

Member-At-Large, Epsilon Pi Tau. (October 26, 2007 - Present).

Member-Engineering Technology Division, American Society of Engineering Educators. (June 2002 - Present).

President, Manufacturing Division, Association of Technology, Management and Applied Engineering. (November 16, 2012 - November 4, 2016).

Chair - Mechanical Engineering Technology Leadership Committee, American Society of Mechanical Engineers. (June 14, 2014 - June 15, 2016).

Member, American Society of Mechanical Engineers. (June 12, 2012 - June 12, 2016).

Vice Chair/Secretary-Mechanical Engineering Technology Department Head Executive Committee, American Society of Mechanical Engineers. (June 12, 2012 - June 14, 2014).

Vice President, Manufacturing Division, Association of Technology, Management and Applied Engineering. (December 21, 2010 - November 16, 2012).

Co-Coordinator Distance and Online Learning Focus Group, Association of Technology, Management and Applied Engineering. (December 8, 2009 - November 16, 2011).

Member-Graphics and University Divisions, National Association of Industrial Technology. (October 2006 - November 2009).

Region 1 Director-University Division, National Association of Industrial Technology. (October 2007 - November 14, 2009).

Member-Contributions Committee, Upper Peninsula Power Company. (August 2008 - October 2008).

ASEE 2008 Annual Conference Session Moderator, American Society of Engineering Educators. (June 2008).

American Technical Education Association. (September 2005 - August 2007).

Licensures and Certifications

ABET PEV, ETAC, SME. (May 15, 2016 - Present).

GO PLM Certification NX7.5, Siemens PLM Software. (June 1, 2012 - Present).

Full Vocational Authorization, State of Michigan, Department of Education. (November 1991 - Present).

Continuing Certificate, of Michigan, Department of Education. (October 1991 - Present).