

# **ANNUAL REPORT**

*for the*

Research and  
Innovation in STEAM  
Education (RISE)  
Institute

Fiscal Year 2023

*submitted to*

The Vice President of  
Research Michigan  
Technological University

Attn: Kathleen  
Halvorsen

Associate Vice President for Research Development

*submitted by*

John L. Irwin, RISE Institute Director,  
MMET Dept. Chair, and MET  
Professor

Manufacturing and  
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and discuss plans to recruit and hire a Program Development Specialist. Presentation slides along with meeting minutes were distributed to all members following the meeting.

- v. Links to [proposal opportunities](#) are posted on the RISE website. In addition, messages are sent by the RISE Director to members with updates, as well as external sponsored opportunities that are generated through Grantforward.com.
- vi. Current center/institute member list (See appendix F)

### 3. Budget Overview

- a. FY23 budget summary includes \$27,497 in revenue plus \$40,671 in carry forward. Expenditures were \$17,760. Balance at year end equals \$50,408. (see appendices A & B for detail expenditures and income).
- b. Rise Institute IRAD was used to enhance member capacity in the enterprise program senior project support, and for the Pavlis Honors College I-Corps program (\$5,381), the Director salary and fringe (\$10,805), providing matching grants (\$781), food for member meetings/books/supplies/software (\$793). These services and assistance were provided directly impact members to help them to be more competitive for external sponsored awards.
- c. Research/outreach proposals submitted during the FY23 included (10, \$4,746,890) and awards (3, \$758,924). Two are pending and 1 was tabled. (see table 1 in appendix D for individual proposals/awards)
- d. Senior project/enterprise proposals submitted during the FY22 included (20, \$249,687.00) and awards (17, \$208,239). (see table 2 in appendix D for individual proposals/awards)
- e. Budget projection chart from ASPIRE database with five-year forecast of proposals in progress (2, \$35,268), current projects (31, \$1,393,260), anticipated (1, \$367,816), and total projected IRAD returns (\$44,742) (See appendix E).

### 4. Future Plans and Goals

- a. Strategic goals for the next year and for the next five years are to continue supporting the Research Development Specialist position at 50% part time with the goal to be self-supporting 100% full time. Also, to continue to coordinate with the new CSEO Director and the new Director of CTL, Jeff Toorongian to develop workshops to assist researchers in developing proposals.
- b. Financial goals are to increase the amount of IRAD to fund the Research Development Specialist position. Membership goals are to be more widely recognized on campus for faculty and staff from all colleges.
- c. No space or facility needs/goals are needed for RISE institute and members.
- d. Coordinating with the GLRC, CSEO and CTL is necessary.
- e. With successfully funded large proposals going through RISE there will be IRAD available to increase the Research Development Specialist position to full-time.

### 5. Challenges and Barriers

- a. The lack of Teacher Education faculty with knowledge of educational assessment strategies.
- b. Few MTU faculty have experience in STEAM education research.

## Appendix A: Major expenditures FY23

<b>Category</b>	<b>Expense (\$)</b>
MMET Department IRAD: Release time for John Irwin, Director	7,577.00
Fringe Benefits	3,227.72
Other Non-Mandatory Transfers (Out) – Pavlis I-corps Enterprise/SP	5,381.28
Food – Annual membership meetings	90.40
Purchasing Qualtrics License – RISE contribution	500.00
Books and Supplies – STEM reading group (Amber Kemppainen)	202.93
Matching Grant Funds – Educational Outreach Proposal	781.00
<b>Total Expenditures:</b>	<b>17,760.33</b>

## Appendix B: Total revenue & budget FY23

Category	Revenue (\$)
IRAD Transfers In	23,746.54
Other Transfers In (Senior Project return)	3,750.74
<b>Total Revenue:</b>	<b>27,497.28</b>
Carryforward:	40,671.28
Expenditures: (See Appendix A)	-17,760.33
<b>Account Budget Balance:</b>	<b>50,408.23</b>

## Appendix C: Ongoing research proposals, FY23

- 1) Michigan Middle School Master Teachers Fellowship Program  
Principal Investigator: Jacqueline E. Huntoon  
Division/Dept: Administration/Provost Office  
Sponsor: National Science Foundation  
Requested Amount: \$1,887,979  
Budget Start: March 2018  
Budget End: Feb 2024
  
- 2) Collaborative Research: NSF-RISE-CAREER: Cavitation  
Principal Investigator: Roohollah Askari  
Division/Dept: Geological & Mining Eng & Sciences  
Sponsor: National Science Foundation  
Funding Amount: \$301,108  
Budget Start: May 2023  
Budget End: April 2028
  
- 3) Research Initiation: Factors Motivating Engineering Faculty to Adopt and Teach New Engineering Technologies  
Principal Investigator: Michelle Jarvie-Eggart  
Division/Dept: College of Engineering/Engineering Fundamentals  
Sponsor: National Science Foundation  
Funding Amount: \$199,633  
Budget Start: Sep-2020  
Budget End: Aug-2024
  
- 4) Research Initiation: Collaborative Research: Recognition of Gender Stereotyping as a Determinant of Stereotype Assimilation and Contrast Effects Resulting from Subtle Bias Exposure in STEM  
Principal Investigator: Lorelle Meadows  
Division/Dept: College of Sciences and Arts/Cognitive and Learning Sciences  
Sponsor: National Science Foundation  
Funding Amount: \$328,757  
Budget Start: Aug-2020  
Budget End: Jul-2024
  
- 5) Engineering Technology Scholars - IMProving REtention and Student Success (ETS-IMPRESS)  
Principal Investigator: John Irwin  
Division/Dept: College of Engineering/MMET  
Sponsor: National Science Foundation  
Funding Amount: \$999,483  
Budget Start: Jan-2018  
Budget End: Dec-2023
  
- 6) COPPE-RISE-CTE Mechatronics  
Principal Investigator: John Irwin  
Division/Dept: College of Engineering/MMET  
Sponsor: CCISD  
Funding Amount: \$40,000  
Budget Start: July-2023  
Budget End: June-2024
  
- 7) UPWAR-RISE-MiLEAP  
Principal Investigator: John Irwin  
Division/Dept: College of Engineering/MMET  
Sponsor: Upper Peninsula Michigan Works  
Funding Amount: \$ 123,406  
Budget Start: July-2021  
Budget End: June-2024

8) MIEDU-RISE-GEAR UP 22-23

Principal Investigator: Cassy A Tefft de Munoz

Division/Dept: Administration

Sponsor: Michigan Dept of Education

Funding Amount: \$ 156,530

Budget Start: Sept-2022

Budget End: Sept-2023

9) UNIVE-RISE-FNR-MSGC-Explore Aerospace

Principal Investigator: Jannah Tumey

Division/Dept: Administration

Sponsor: University of Michigan-Michigan Space Grant Consortium

Funding Amount: \$ 2,201

Budget Start: May-2022

Budget End: Oct-2023

10) Michigan Tech Summer Youth Programs - National Summer Transportation Institute 2023

Principal Investigator: Bradley Wells

Division/Dept: Administration

Sponsor: Michigan Dept of Transportation

Funding Amount: \$ 50,000

Budget Start: May-2023

Budget End: Sep-2023

## Appendix D: Proposals submitted affiliated with RISE, FY23

Table 1: Research Proposals

STATUS	PRINCIPAL_NAME	DIVISION_NAME	SPONSOR	REQUESTED_AMOUNT
Awarded	Roohollah Askari	College of Engineering	National Science Foundation	\$668,924
Awarded	Bradley A. Wells	Administration	Michigan Dept of Transportation	\$50,000
Awarded	John Irwin	College of Engineering	Copper Country Intermediate School District (CCISD)	\$40,000
Declined	Janet M. Callahan	College of Engineering	National Science Foundation	\$1,999,999
Declined	Michelle E. Jarvie-Eggart	College of Engineering	National Science Foundation	\$298,566
Declined	Leo C. Ureel II	College of Computing	National Science Foundation	\$449,087
Declined	Shari Stockero	College of Sciences & Arts	National Science Foundation	\$1,016,835
Pending	Nicholas V. Hendrickson	College of Engineering	US Dept of Commerce	\$148,893
Pending	Kaitlyn Rawhouser	Administration	Keweenaw Community Foundation	\$6,441
Tabled	Bradley A. Wells	Administration	Michigan Dept of Transportation	\$68,145

Table 2: Enterprise/Senior Design Proposals

STATUS	PRINCIPAL_NAME	DIVISION_NAME	SPONSOR	REQUESTED_AMOUNT
Awarded	Tony J. Pinar	College of Engineering	Stevens Institute of Technology	\$5,000
Awarded	Glen E. Archer	College of Engineering	Stevens Institute of Technology	\$7,739
Awarded	Glen E. Archer	College of Engineering	Stevens Institute of Technology	\$5,000
Awarded	Sean J. Kirkpatrick	College of Engineering	Stevens Institute of Technology	\$5,000
Awarded	Nagesh Hatti	Assoc Provost Undergrad Education	Miller Electric Mfg Co	\$8,750
Awarded	Sean J. Kirkpatrick	College of Engineering	Barologics	\$8,000
Awarded	Tony N. Rogers	College of Engineering	CertainTeed Corp (CT)	\$17,500
Awarded	Steven D. Lehmann	College of Engineering	Senger Innovations LLC	\$5,000
Awarded	Tony J. Pinar	College of Engineering	Riverbend Lepak LLC	\$6,500
Awarded	Sean J. Kirkpatrick	College of Engineering	Resolve Surgical Technologies	\$17,500
Awarded	Glen E. Archer	College of Engineering	Oshkosh Corp	\$8,500



Awarded	Christopher M. Cischke	College of Engineering	Stellantis	\$17,500
Awarded	David M. Labyak	College of Engineering	Lear Corp	\$35,000
Awarded	Sean J. Kirkpatrick	College of Engineering	Medtronic Inc	\$17,500
Awarded	Tony N. Rogers	College of Engineering	Sussex IM	\$8,750
Awarded	Timothy C. Havens	College of Computing	Fincantieri Marinette Marine	\$17,500
Awarded	Sean J. Kirkpatrick	College of Engineering	LifeBridge Health	\$17,500
Declined	Sean J. Kirkpatrick	College of Engineering	US Dept of Health and Human Services	\$9,948
Declined	Tony J. Pinar	College of Engineering	Kimenker Don	\$7,500
Declined	Radheshyam Tewari	College of Engineering	Tree Frog Aquagric International LLC	\$24,000



## Appendix F: RISE Membership FY23

Email	College	Department	Member Name
asmirnov@mtu.edu	Engineering	geological and Mining	Aleksey Smirnov
algonczi@mtu.edu	Sciences and Arts	Cognitive and Learning Sciences	Amanda Gonczi
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