

ME-EM

Michigan Tech

eNewsBrief

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Greetings from William (Bill) Predebon, Chair, Department of Mechanical Engineering-Engineering Mechanics at Michigan Tech. For the latest news and info about our faculty, students and staff, please visit our website at www.mtu.edu/mechanical. Visit us on Facebook, [MEEM](#).

Upcoming Events

The ME Scholarship Winter Carnival Alumni Hockey Social will be held on Saturday, February 6, 2016, during the Michigan Tech versus Lake Superior State hockey game in the Husky Suite South Skybox of the Student Development Complex (SDC). The game has a 5:07 PM start time. Join us for this fun filled event. Cost of the hockey social is \$30 per person which covers a \$15 donation to a ME department scholarship fund and the hockey suite ticket. Pizza, hot dogs, soda, beer, wine, etc. compliments of the ME-EM Department. Please RSVP to Kathy at kagoulet@mtu.edu or 906-487-2911 to reserve yours.



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ME-EM Department Chair Travel

When on travel for the Department, Dr. Predebon visits with alumni to get their feedback on our programs and their career and to give an update on the Department and the University. Please let the Department know if you would be available for a visit when he is in your area. (906) 487-2551.

Dr. Predebon will be traveling to the following cities later this fall

- Week of November 1st—Pittsburgh PA
- Week of November 15th—Houston TX

Past Events

The Department of Mechanical Engineering - Engineering Mechanics again hosted the ME-EM Alumni Cruise during the Michigan Tech Annual Alumni Reunion aboard the Ranger III. Alumni, friends, faculty, and staff cruised down the Portage Canal on Thursday, August 6th. Cruise [Photos](#).



The Department of Mechanical Engineering



-Engineering Mechanics hosted a research poster session and reception in the ME-EM lobby and first floor of the

R.L. Smith Building on September 21st. The event was a mini-conference where ME-EM faculty and graduate students presented posters and displays describing on-going and future research activities. The campus community was invited to attend and learn about the diverse research in ME-EM.

Alumni and Friends News, Accomplishments & Awards

Carl Avers' (BSME '62) company, Youngstown Thermal, was selected as the site for the Department of Energy and Energy Industries of Ohio project for the design, procurement, construction and testing of a prototype Advanced Ultra-SuperCritical Component – or AUSC – steam turbine and related components. Read the [article](#).



Cynthia Protas Hodges (BSME '87) returned to campus in September to present a \$30,000 check from Ford at the Career Success Day breakfast, held during the Presidential Council of Alumnae meeting. She is a chassis supplier technical assistance site manager at Ford Motor Company. The gift from Ford will fund three youth programs for women in the summer of 2016, all designed to engage young women in science, technology, engineering and mathematics (STEM) fields.



Britta A. Jost (BSME '04) was awarded the Michigan Tech Outstanding Young Alumni Award on August 7th at the Alumni Reunion Dinner and Awards Ceremony. She is currently a senior engineer in large structures design engineering at Caterpillar Inc. She is Caterpillar's lead engineering recruiter at Tech and was the keynote speaker at the Student Leadership Awards Ceremony in June. See her [profile](#).



Andy Oliver (BSME '91) has invented a paint brush cover to allow paint brushes to dry and protect bristles that he is selling online and through a chain of Michigan paint stores. [Brushaper](#)

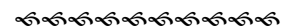


William P. Robinson's (BSME '41) bequest to the ME-EM Department was featured in the Daily Mining Gazette. He established the the William P. Robinson Endowed Scholarship Fund to offer finan-

cial assistance to mechanical engineering majors. The endowed scholarship fund has received nearly \$2.3 million from the estate of Robinson's daughter, the late Patricia Hall of Fort Collins, Colo. Read the story at [scholarship](#).



The Tyco company from Marinette, WI held an info session at Michigan Tech prior to the Career Fair on Wednesday September 23rd. Almost half of the Tyco engineering staff are Michigan Tech alumni, with a large portion of those being mechanical engineering graduates.



Dr. Hussein Zbib (BSME '81, MSME '83, and Phd '87) received the Voiland College of Engineering and Architecture's 2015 Anjan Bose Outstanding Researcher Award. He is a professor and former head of the School of Mechanical and Materials Engineering at Washington State University. He is also a member of the MEEM External Advisory Board. [Award](#)



Faculty/Staff Awards/Accomplishments

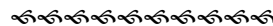
Dr. Craig Friedrich (professor, Associate Chair, Director of Graduate Studies, and the Robbins Chair in Sustainable Design and Manufacturing, ME-EM) has been elected Fellow of ASME. He is being recognized for his significant, lifetime engineering accomplishments.



Dr. Gopal Jayaraman (professor, ME-EM) played an integral part in the partnering of Michigan Tech and Kamaraj College of Engineering and Technology in India. Read the [story](#).



Dr. John Johnson (research professor and professor emeritus, ME-EM) chaired a National Academy of Engineering (NAE) committee that just published the Review of the 21st Century Truck Partnership Third Report. Former Michigan Tech President Dale Stein also served on the NAE committee.



The National Science Foundation tweeted that **Nina Mahmoudian** (assistant professor, ME-EM) is a "rock star." The tweet referred to her winning both an NSF Career Award and an Office of Naval Research Young Investigator Program award this year. See the [tweet](#).



Dr. William W. Predebon (department chair and professor, ME-EM) has been named the JS Endowed Department Chair. The endowed position was made possible by an anonymous \$3 million estate gift. News of the award was published on WJMN-TV 3 [UP Matters](#).



Dr. William W. Predebon was quoted in GoodCall in the [article](#) "Recent Georgetown Study Compares Bachelor's and Master's Degree Salaries."



Dr. William W. Predebon was interviewed by the Daily Mining Gazette in Houghton, MI regarding the TECAID program. Read the [interview](#).

New Faculty

Dr. Youngchul Ra has joined the faculty of the ME-EM Department as an associate professor. He received his Ph.D. (1999) in Mechanical Engineering from Massachusetts Institute of Technology, and his Bachelor and Master's degrees from Seoul National University. With background in both experimental and numerical research, he is currently focusing on the field of modeling and numerical simulation pertaining to combustion and emissions, internal combustion engines, alternative fuels, two-phase flow, computational fluid dynamics, chemical kinetics, etc.



Current Contracts and Grants

Andrew Barnard (PI, ME-EM); “Suspended Floor Material Testing”; sponsor: ACG Materials; total award amount: \$22,188.

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**Andrew Barnard (PI, ME-EM);** “Sound Power Measurement System for Fire Protection Systems”; sponsor: Tyco Fire Products LP; total award amount: \$12,452.

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Andrew Barnard (PI, ME-EM), Nina Mahmoudian (Co-PI, ME-EM), and Guy Meadows, (Co-PI, VPR); “Developing a Talent Pipeline: Inspiring Future Naval Engineers and Scientists Using Real-World Project Based Instruction”; sponsor: US Department of Defense/ Office of Naval Research; total award amount: \$643,954.

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**Kazuya Tajiri (PI, ME-EM);** “In-Situ Transient Analysis of Two-Phase Flow Pressure Drop in PEMEC Flow Channels”; sponsor: Toyota Motor Corporation; total award amount: \$110,000.

**Nina Mahmoudian (PI, ME-EM);** “Toward Undersea Persistence”; sponsor: Office of Naval Research Young Investigator Program (YIP); total award amount: \$652,931.

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Jeffrey Naber (PI, ME-EM), Henry Schmidt (Co-PI, ME-EM); “Fixtures for Light Duty Injector and Integration, Drive Setup and Validation”; sponsor: Aramaco Services Company; total award amount: \$38,000.

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**Jeffrey Naber (PI, ME-EM), Seong-Young Lee and Henry Schmidt (Co-PIs, ME-EM);** “Bosch G4 CR Injector Spray Characterization”; sponsor: John Deere; total award amount: \$86,343.

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Jeffrey Naber (PI, ME-EM), Paul Dice and Mahdi Shahbakhti (Co-PIs, ME-EM); “Injector evaluation and Characterization on Mahle Optical Single Cylinder DI SI Engine”; sponsor: Nostrum Energy, LLC; total award amount: \$63,477.

William Predebon (PI, ME-EM) and John Diebel (Co-PI, IIE); “Mineral Removal from Biocoal Produced from MSW”; sponsor: Treamin Energy inc; total award amount: \$67,500.

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**Jeremy Worm (PI, ME-EM);** “Continued Development of a Robust Igniter for Methane Fueled SI Engines”; sponsor: E3 Spark Plugs; total award amount: \$60,000.

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Jeremy Worm (PI, ME-EM), Jeffrey Naber (Co-PI, ME-EM); “Development of a High BMEP SI Engine and Determination of Combustion Knock Mitigation via Water Injection”; sponsor: Nostrum Energy, LLC; total award amount: \$189,014.

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**Jeremy Worm (PI, ME-EM);** “Support of NIDays Chicago 2015 with the Michigan Tech Mobile Lab”; sponsor: National Instruments Corporation; total award amount: \$7,022

## Student Competitions and Team Awards

U.S. Army Cadet Command, a newsletter for Army ROTC cadets, published the news that Washington Monthly ranked Michigan Tech 7th in the nation for ROTC participation. Read the [article](#).



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The Michigan Tech volleyball earned one of the American Volleyball Coaches Association (AVCA) Team Academic Award for the 2014-15 season. The 2015 COE Undergraduate Education Publication features the MEEM

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Velovations (bicycle) Enterprise's winning Renew-U (Resistance Exercise via Negative Eccentrically-induced work) design. Their design took first place at the Rekhi Enterprise Funding Challenge earning them \$8,560. The Renew-U is an ergometer for wheelchair users. It provides a way to exercise upper-extremity muscles to improve their strength and wheelchair mobility. A Team of six mechanical engineering students worked on the [project](#). Their advisor is Steve Lehmann (research associate, ME-EM).

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Come Join Us

ME Scholarship Winter Carnival Alumni Hockey Social

Saturday, February 6, 2016

Michigan Tech vs Lake Superior State Husky Suite South Skybox

Student Development Complex (SDC). 5:07 PM

\$30 per person (\$15 donation to a ME department scholarship and the hockey suite ticket.

Pizza, hot dogs, soda, beer, wine, etc. compliments of the ME-EM Dept

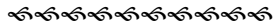
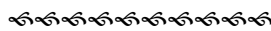
Please RSVP to Kathy at kagoulet@mtu.edu or 906-487-2911

Student Accomplishments/ Awards

Mahsa Asgarisabet and **Troy Bouman** (PhD students, ME-EM) won the Best in Show Award at the SAE NVH conference, June 22-25 in Grand Rapids, MI. The award was for their demonstration of carbon nanotube speakers. Their advisor is Dr. Andrew Barnard (assistant professor, ME-EM). Their work was also highlighted in [nanowerk](#), [IEEE Spectrum](#), and [Lab Manager magazine](#).

Driver Development Program Gives Grass Roots Racers a Shot at the Big Time," by Rod Fisher. The article appeared in the online magazine Circle Track, published by Hot Rod Network. It is an in-depth look at May, who is in her second season as a race driver in the TUNDRA Super Late Model Stock Car Series. May is one of just seven drivers nationally, and the only woman, selected for the Kulwicki Driver Development Program. Read the [article](#).

academic performance as well as his internship experience and leadership roles in the student chapter of the American Society of Mechanical Engineers and Cru Christian student organization. He is also a member of the Formula SAE Racing Team's powertrain team. **Cynthia Protas Hodges** (BSME '87) made the presentation. Alan Mulally is the former president and CEO of the Ford Motor Company. The fund will support ten \$10,000 scholarships to outstanding sophomore or junior engineering students at Ford's 20 premiere partner universities around the globe for the next 10 years. Michigan Tech is among the inaugural schools to award this scholarship.



Reagan May (sr., - ME-EM) was featured in the article, "The Kulwicki

Michael Robinson (so., ME-EM) was awarded a \$10,000 Alan Mulally Leadership in Engineering Scholarship. He was selected for his strong

CAPSTONE

MEEM Capstone—

ORZUR

MEEM's Capstone program, the reigning champion of Air Force Research Labs' National Invitational Design Challenge, just kicked off another 22 projects this fall. Teams are underway in designing next-gen surgical tools, improving process efficiency for a number of manufacturing facilities, designing and building automated cells for product qualification operations, and last but not least defending our AFRL National Championship Trophy!



We are now actively planning for our next group of projects, which will begin 12 January 2016. If you are interested in getting involved in a project for 2016, engaging and supporting our nationally recognized program, please contact us today!

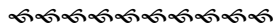
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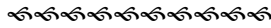
University News/Awards



Jacqueline Huntoon, former dean of Tech's Graduate School since 2005 and associate provost since 2011, is Michigan Tech's new provost and vice president for academic affairs. She also holds an appointment as professor in the Department of Geological and Mining Engineering and Sciences. She replaces Max Seel who has returned to the Department of Physics faculty.



Dr. Wayne Pennington, dean of Michigan Tech's College of Engineering, is among 100 engineering school heads to sign a letter from the American Society for Engineering Education (ASEE) committing the College to take action to increase diversity among their students and faculty.

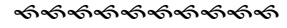


Michigan Tech was highlighted in Corp Magazine's "Beyond Autos – Michigan as continues to build on strengths derived from next generation industries." Read the [article](#).

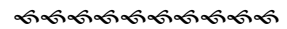


Michigan Governor Rick Snyder has appointed Michigan Tech **President Glenn Mroz** to the board of the Michigan Education Trust (MET). MET is a prepaid college tuition plan that enables families to pre-purchase tuition based on today's tuition rates. The plan then covers the future cost of tuition when the child reaches col-

lege. He will serve the remainder of a three-year term expiring Dec. 31, 2015. His appointment is subject to the advice and consent of the Senate.



Michigan Tech has been recognized by BestColleges.com as one of the 50 best small-town colleges nationwide. BestColleges.com maintains a database of colleges and universities designed to help students and their families learn about their options for higher education. [Best Colleges](#).



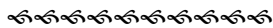
Fourteen middle and high school teachers from across Michigan were on the Michigan Tech campus the week of July 6th as part of the five-day "Engaging Students in Authentic Science Research Teacher Institute" The program is designed to teach the teachers how to engage their students in designing and conducting original research.

University Rankings

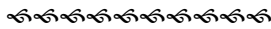
In Payscale.com's latest College Salary Report, Michigan Tech ranks first among public universities in Michigan for the mid-career salaries earned by its graduates, 13th nationwide for mid-career salaries of graduates of public universities, and 20th in the nation for mid-career engineering salaries. Find the rankings at [Payscale](#).



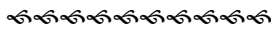
Princeton Review's 2016 issue of The Best 380 Colleges ranks Michigan Tech among the best Midwestern colleges and green colleges nationwide. The rankings focus on undergraduate education and are based on surveys of 136,000 students at the 380 colleges on the [Best Colleges](#) list.



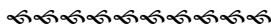
SmartAsset, a New York financial technology company, has ranked Michigan Tech second in the state for the highest average starting salary of its graduates. SmartAsset listed Michigan Tech's average starting salary at \$59,200. That figure is outdated. Payscale.com listed Tech graduates' average starting salary at \$61,000 in 2014.



US News & World Report's Best Undergraduate Colleges and Universities ranked Michigan Tech 59th nationwide, which is near the top third of 173 public national universities. Michigan Tech's College of Engineering undergraduate programs placed in the top half of the engineering programs ranked by US News, moving up three points from last year to rank 70th of 152. [TechCentury](#) carried the report of the increase in rankings.

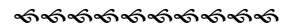


Washington Monthly magazine's newly released College Guide ranked Michigan Tech 7th in the nation for its ROTC program and 15th for faculty receiving significant research grants. The magazine's latest rankings also placed Michigan Tech in the top 25 percent of all national universities and the top 18 percent for students earning bachelor's degrees who go on to earn PhDs. [College Guide](#).



Money magazine has ranked Michigan Tech among the top 50 public universities

in the nation in its 2015 "Best Colleges." Tech also was listed as one of the "50 best colleges you can actually get into," which the magazine defines as institutions that accept at least two-thirds of applicants. In its overall evaluation of 736 colleges and universities across the US, Money [ranked](#) Michigan Tech 127th.



Donna Fard (MS student, ME-EM) explains her research with an underwater robot to a Wallace Renn (BSME '53) on the ME-EM Alumni Cruise during the Michigan Tech Annual Alumni Reunion on August 6, 2015.. Her advisor is Dr. Nina Mahmoudian (assistant professor, ME-EM).