Greetings from William (Bill) W. Predebon, Chair, Department of Mechanical Engineering-Engineering Mechanics. For the latest news and information about our faculty, students, and staff please visit our web site at http://www.me.mtu.edu/.

**Upcoming Events**

**ME-EM Annual Reunion Cruise:**
Please join us aboard the Ranger III for an afternoon cruise down the Portage Canal on Thursday, August 5th. Board the Ranger III at 12:30 p.m. at the National Park Service dock east of the Dee Stadium and right behind the Franklin Square Inn. We depart at 1:00 p.m. and will return at 3:30 p.m. (plenty of time to attend the Pasty Picnic). Space is limited and reservations are required so RSVP as soon as possible to kagoulet@mtu.edu or phone (906) 487-2551. Please note that the Ranger cruise is a change from last year and from what was advertised in Reunion materials. Refreshments and the cruise are compliments of the ME-EM Department.

**MEEM 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 University. Please let the Department know if you would be available for a visit when he is in your area. Dr. Predebon will be traveling to Vancouver, British Columbia, November 12-18, 2010 for the ASME International Mechanical Engineering Congress and Exposition. Please call (906) 487-2911 to arrange a meeting.

## Annual Report Corrections

The following alumni donors were inadvertently left out of our 2009 Annual Report. We deeply apologize for the error.

In the $1,000—$4,999 category
- Bernard & Marilyn Finn
- Charles & Marilyn Knauer
- Andrew Kolosiuq
- Timothy & Beverly Rosemeyer
- Gilbert & Joan Wirkner

In the $500—$999 Category
- Ronald & Katherine Settimi
- Robert & Elizabeth Wise

The Department of Mechanical Engineering—Engineering Mechanics' 2009 Annual report has been mailed. If you have not received one and would like to, please contact us at:

**ME-EM**
1400 Townsend Dr.
815 ME-EM
Houghton, MI
49931

or call:

(906) 487-2551
Kirby Baumgard (PhD Environmental Engineering and ME-EM External Advisory Board member), has been named Project Manager-Advanced Engine Technology at Deere & Company.

Elzbieta G. Berak (PhD, Engineering Mechanics, '85) was inducted into the Michigan Tech Presidential Council of Alumnae on April 16, 2010. She is currently a senior engineer with the Exelon Corporation in Chicago, IL.

Wendy L. Kram (BSME '91) was inducted into the Michigan Tech Presidential Council of Alumnae on April 16, 2010. She is currently the founder and CEO of Propel Business Leadership Program Management, GM, was highlighted in the June 24th edition of the Detroit Free Press for his personal foundation's work in Africa. The foundation supported a senior design project that built a human powered grain mill for use in Africa. Read the article at: http://www.freep.com/print/article/20100624/BUSINESS01/6240450/GM-knows-how-helps-Africans

Dr. Terry Woychowski (BSME '78), vice president, Global Vehicle Program Management, GM, was highlighted in the June 24 edition of the Detroit Free Press for his personal foundation's work in Africa. The foundation supported a senior design project that built a human powered grain mill for use in Africa. Read the article at: http://www.freep.com/print/article/20100624/BUSINESS01/6240450/GM-knows-how-helps-Africans

Dr. Jeffrey S. Allen (associate professor, ME-EM) and Ezequiel Medici (PhD candidate, ME-EM) have received the 2010 Bhakta Rath Research Award. They are the first recipients of the award which recognizes excellence in scientific and engineering research in the field of physical and natural sciences and engineering. It was made possible by an endowment from Bhakta B. Rath and his wife, Sushama Rath. The award recognizes a doctoral student at Michigan Tech and his or her faculty advisor for "exceptional research of particular value that anticipates the future needs of the nation while supporting advances in emerging technology."

Dr. John H. Johnson (Presidential Professor Emeriti, ME-EM) had his service on two committees that evaluated various technologies to reduce and improve fuel consumption highlighted in the June 16, 2010 issue of Tech Today. One focused on medium- and heavy-duty vehicles, such as tractor-trailers, transit buses and work trucks. The other addressed fuel consumption in passenger cars, sport-utility vehicles, minivans and other light-duty vehicles. Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20100616.

Dr. Charles H. Margraves (lecturer, ME-EM) received the 2010 Distinguished Teaching Award in the Assistant Professor, Professor of Practice, or Lecturer category (only one is awarded per year) after only two years at Michigan Tech.

On May 4, 2010, the following ME-EM faculty and staff were honored for their service to Michigan Tech: Ibrahim Miskioglu (associate professor), Sheryl A. Sorby (professor), and Madhukar A. Vable (associate professor) were honored for 25 years of service. Robert L. Whipple (research engineer/scientist II) for 30 years of service.

Dr. Jeffrey D. Naber received one of the Engineering Society of Detroit's (ESD) Distinguished Service Awards on June 23, 2010. Dr. Naber taught a graduate course in Detroit in advanced hybrid electric propulsion technology for displaced and working engineers as a part of the tri-lateral partnership between GM, Michigan Tech and ESD.

Dr. Sheryl A. Sorby (professor, ME-EM) had her research cited in "Why So Few? Women in Science, Technology, Engineering, and Mathematics highlighted on the AAUW website. Read the article at: http://www.aauw.org/learn/research/whysofew.cfm.


**Current Contracts and Grants**

**Jeffrey S. Allen** (PI, ME-EM) and **Reza Shahbazian Yassar** (Co-PI, ME-EM); "Development of Microstructural Mitigation Strategies for PEM Fuel Cells: Morphological Simulations and Experimental Approaches", sponsor: Ballard Power Systems; total award amount: $529,936.

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**L. Brad King** (PI, ME-EM) and **Phillip Hohnstadt** (Co-PI, sr., ME-EM); "Oculus - ASR Nanosatellite", sponsor: University of Michigan - Michigan Space Grant Consortium; total award amount: $2,500.

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**Seong-Young Lee** (PI, ME-EM) and **Andrew Ramsey** (Co-PI, sr., ME-EM); "Investigation of Combustion Instabilities in Lean-Premixed Gas Turbine Combustors", sponsor: University of Michigan - Michigan Space Grant Consortium; total award amount: $2,500.

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**L. Brad King** (PI, ME-EM) and **Ben Gerhardt** (Co-PI, sr., ME-EM); "Photogrammetrics Small Unmanned Aerial Vehicle (PSUAV) - Aerospace Enterprise", sponsor: University of Michigan - Michigan Space Grant Consortium; total award amount: $2,500.

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**Jeffrey D Naber** (PI, ME-EM) and **Karthik Krishna** (Co-PI, ME-EM); "Market Trading Optimization", sponsor: White Pine Electric Power, LLC; total award amount: $32,993.

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**Amitabh Narain** (PI, ME-EM); "Ground-Based Experimental and Computational Investigations of Shear Driven Internal Condensing/Boiling Flows for Flight Experiments and Space-Based Two-Phase Systems", sponsor: NASA Glenn Research Center; total award amount: $100,000.

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**Sheryl A. Sorby** (PI, ME-EM) and **Tammy L. Haut Donahue** (Co-PI, ME-EM); "Strategies for Support of the STEP Program", sponsor: National Science Foundation; total award amount: $351,371.
Student Competitions and Team Awards

The Michigan Tech Undergraduate Expo was held on April 19, 2010, on the Michigan Tech campus. The following Mechanical Engineering teams took home honors:

Senior Design
2nd place
Team 125, Tailings Slope Sustainment System
Team Members: Jim Boex, Tyler Bushelle, Dave Flessert, Jake Gatien, Brian Skauge, Nate Thomas
Advisor: Mike LaCourt (research scientist, ME-EM)
3rd place
Team 102, Portable Trap Thrower (tied)
Team Members: Sam Handschke, Kevin Moran, Tim Olson, Ryan Szpara, and Ryan Ward
Advisor: Dr. Chris Passerello (professor, ME-EM)

Enterprise
1st place
Team 308, Consumer Product Manufacturing.
Team co-leader was Ben Kusterer (sr., ME-EM)
2nd place
Michigan Tech Blue Marble Security Enterprise team.
Team co-leader was David Thunes (sr., ME-EM).

The International Senior Design Team won national honorable mention at the National Sustainability Design Expo held in Washington, D.C on April 24 - 25, 2010 for their Pit Toilet project. The event was sponsored by the US Environmental Protection Agency. Team members are Ashley Thode (Civil Eng), Krissey Guzak, Cara Hanson, and Kim Landick (Env. Eng.). Craig Gossen and Stephen Marek (ME-EM). The faculty advisors are Dr. David Watkins (associate professor) and Dr. Kurt Paterson, (assistant professor) - Civil and Environmental Engineering; and Dr. Donna Michalek (associate professor - ME-EM and assistant provost). Read the article at: http://www.mtu.edu/news/stories/2010/april/story25807.html.

Senior Design Team 1, had their project, "Biodegradable Clay Pigeons" highlighted in the April 16, 2010 issue of Tech Today. The team has devised a pigeon that is made of three corn-based ingredients and is biodegradable to hopefully replace the current clay pigeons that are made of tar, pitch, and limestone and are not biodegradable. The team consists of ME seniors Simon Dezelski, Robert Gisch, Tyler Hendrickson, Graig Vansickle, and Qiao Zhou. Their advisor is Dr. Charles Margraves (lecturer, ME-EM). Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20100416.

The following teams received the 2010 Future Innovators Award at the Michigan Tech Undergraduate Expo. This award is voted upon by the more than 100 high school students and their teachers from L'Anse and Dollar Bay who attended the Michigan Tech Undergraduate Expo. All participate in the Michigan Tech GEAR UP program.

Senior Design - Display Device
Team Members: Eric Diehr, Matt Peterson, Genevieve Taylor, and Will Whipple, ME-EM
Advisors: Dr. James De Clerck (professor of practice, ME-EM) and Prof. Charles Van Karsen (associate professor and Associate Chair and Director of Undergraduate Studies, ME-EM)

Enterprise - Nanotech Enterprise
Team Leaders: Echoe Bouta, Biomedical Engineering, and Greg Teeters, ME-EM
Advisor: Dr. John A. Jaszcuk, Physics

See short video clips of the 2010 Mechanical Engineering Senior Capstone Design projects at: http://www.youtube.com/view_play_list?p=1C1640FBF9272F5E

CAPSTONE DESIGN PROGRAM

Nineteen Capstone Design projects were completed successfully this past April and another nine are at their halfway point, having started in January. A good number of dedicated students are working on these projects over the summer. One very interesting entrepreneurial project is continuing this summer with business students from Aquinas College growing a market and building a business case for a biodegradable clay pigeon designed by a Capstone Design team this past year; exciting collaboration with some innovative ideas coming from these groups!

Michigan Tech’s Capstone Design Program is looking for more industry sponsored projects for the Fall 2010 semester. If you can support this world-class engineering design program, and would like a part of this Capstone Experience, please contact me:
Bob DeJonge
(906) 487-2142
rdejonge@mtu.edu
Student Competitions and Team Awards Continued

Senior Design Team 10, had their project, "OpensAll" highlighted in the April 19, 2010 issue of Tech Today. The Team has designed a can opener that can open almost anything. The team consists of ME seniors William Donavan, Jonathan Hoyer, Tyler LeRoy, Adrian Simula, and Lisa Staehlin. Their advisor is Dr. V C Rao Komaravolu (principal lecturer, ME-EM). Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20100419.

Senior Design Team 16, had their project, "Portable Trap/Skeet Thrower" highlighted in the April 16, 2010 issue of Tech Today. The Team has designed and made a portable thrower. The team consists of ME seniors Kevin Moran, Sam Hanschke, Tim Olson, Sam Szpara, and Ryan Ward. Their advisor is Dr. Chris Passerello (professor, ME-EM). Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20100415.

Senior Design Team 33, Adam Bieber, Andrew Bomstad, Jared Recker, Joshua Schmidt and Benjamin Vindedahl, had their project "Air Driven Moped" highlighted in the April 15, 2010 edition of Tech Today. Using a couple of scuba tanks and a 1978 Sachs moped, the team built an air driven moped. Their advisors are: Dr. James De Clerck (professor of practice, ME-EM) and ME-EM graduate student Nick Mastricola. Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20100415.

Michigan Tech's Formula SAE team placed 63rd overall in the Formula SAE competition held at the Michigan International Speedway on May 12-15, 2010. The team finished 19th in Design Presentation and tied at 16th for Design overall. They received no penalty points. The faculty advisor is Dr. William Shapton (emeritus professor, ME-EM).

Michigan Tech's Blizzard Baja team took 16th overall and 1st in Design at the Rochester 2010 Baja competition held at Rochester Institute of Technology, June 10 -13th. The faculty advisor is Dr. Brett Hamlin (Assistant Chair, Engineering Fundamentals).

Faculty & Student Invention Disclosures

Drs. William Emblom and Jaime Camilio (adjunct assistant professors, ME-EM) along with Scott Wagner (lecturer, SoT), Kenny Ng (PhD student, Civil Eng) have filed an invention disclosure "A novel high pressure sealing system for tube hydroforming applications that utilizes a tube encompassing flexible gasket and uniquely designed seal activity".

Dr. Gopal Jayaraman (professor, ME-EM) has filed an invention disclosure, "Battery Operated Scoop and Shovel (S&S) Snow Remover".

Dr. Edward Lumsdaine (professor, ME-EM) has filed an invention disclosure, "Thermally controlled packaging and shipping system using optimized temperature gradient".

Senior Design Team 1 has filed an invention disclosure, "Biodegradable Clay Pigeon".

Senior Design Team 2 has filed an invention disclosure, "Gait Aid Device".

Department Accomplishments

The 2011 graduate program rankings released on April 16, 2010 by US News and World Report: America's Best Graduate Schools rank the Department of Mechanical Engineering - Engineering Mechanics graduate program 48th nationally among doctoral granting mechanical engineering department in the U.S.


Don't forget to RSVP for the ME-EM Annual Reunion Cruise aboard the Ranger III on Thursday, August 5th. Board the Ranger III at 12:30 p.m. at the National Park Service. RSPV to kagoulet@mtu.edu or phone (906) 487-2551.
**Student Accomplishments and Awards**

Abraham Morrow and Duane Morrow (graduate students, ME-EM) and John Moyer (undergraduate student, ME-EM) received $500 each toward a podium presentation at the American Society of Mechanical Engineers - Summer Bioengineering Conference held in June in Naples, Fla. The faculty advisor is Dr. Tammy Haut Donahue (associate professor, ME-EM).

Sarah Cavanagh (jr., ME-EM) received the Rookie of the Year, Outstanding Women in Engineering Award on May 25, 2010, during the 2010 EcoCAR Competition in San Diego, CA. The faculty advisor is Dr. John Beard (associate professor, ME-EM).

Ken Gilkerson (sr., ME-EM) was named to the ESPN The Magazine Academic All-District Team and the All-American Second-Team. This is the second year in a row that he has won all-American honors and was the only student-athlete from the Great lakes Intercollegiate Athletic Conference selected. The Brooklyn Park, MN. native finished 10th in the 800-meter run at the 2010 NCAA Division II Outdoor Track and Field Championships in a school record time of 1:51.08.

Alexandru Herescu (PhD student, ME-EM) was awarded a DeVlieg Foundation fellowship. His faculty advisor is Dr. Jeffrey Allen, (associate professor, ME-EM).

Kasra Momeni (PhD student, ME-EM) received $500 toward a poster presentation at the 2010 Materials Research Society Spring Meeting Symposium held in April in San Francisco, Calif. His faculty advisor is Dr. Reza Shahbazian Yassar (assistant professor, ME-EM).

Christopher Morgan (PhD student, ME-EM) was one of four graduate students from Michigan Tech to go to Lansing, Mich., (graduate students, ME-EM) and John Moyer (undergraduate student, ME-EM) received $500 each toward a poster presentation at the American Society of Mechanical Engineers - Summer Bioengineering Conference held in June in Naples, Fla. The faculty advisor is Dr. Tammy Haut Donahue (associate professor, ME-EM).

The following ME-EM ROTC cadets were recognized in April as outstanding cadets:

**Army ROTC:**
- Reid Barber (so.), Superior Cadet Award and the Dean's List Award
- David Brown-Strange (so.), Silver ROTC Medal
- Chad Hemingway (sr.), National Sojourners Award and the Athletic Award Series
- Kathryn Hill (sr.), Superior Cadet Award
- Alexander Tuomi (so.) Dean's List Award

**Air Force ROTC:**
- Timothy Cencer (so.), American Legion Award for General Military Excellence
- Trevor Clearwater (jr.), American Legion Award for General Military Excellence
- Sean Keys (sr.), American Legion Award for General Military Excellence and Military Order of World Wars Award
- Michael LaFevre (so.), American Legion Award for Scholastic Excellence
- Jacob LaSarge (jr.), Veterans of Foreign Wars Award
- Dylan Penn (jr.), Society of the War of 1812 Award
- Nathan Ralph (jr.), Daughters of the Founders and the Patriots of America Award
- Sean Ritter (sr.), American Legion Award for Scholastic Excellence and National Defense Transportation Association Award
- Keegan Shannon-Loheny (sr.), American Legion Award for Scholastic Excellence and Air Force Association Award
- Tolou Shokufar (PhD student, ME-EM) had her research with nanotubes and orthopedic implants highlighted in the Michigan Tech News. Read the article at: [http://www.mtu.edu/news/stories/2010/may/story26867.html](http://www.mtu.edu/news/stories/2010/may/story26867.html). Her advisor is Dr. Craig Friedrich (professor, MEEM)

The following ME-EM students were selected for Michigan Tech's Women of Promise:
- Jaclyn E. Nesbitt, graduate student
- Leslie M. Sabbann, undergraduate student

This award recognizes current female students from each academic department who go above and beyond what is expected of them in terms of being a well-rounded student. The award goes to students who have demonstrated academic achievement, campus and community leadership, good citizenship, creativity and other characteristics of high-achieving individuals.