Professor Recktenwald Wins Teaching Award!

Harvesting Energy from Vibrations by Dr. Tai

Spring 2022 Senior Electives

Photo taken at the Michigan International Speedway on July 10th, 2021 after placing 4th overall in the FSAE MIS Competition. Justin Yan, Garrett Colasinski, Anissa Sant, Dave Yonkers, Ronald Hodge, RobertWalston, Abhyuday Rastogi, Mitchell Clark, Cameron Hesano, Matthew Ajlouny, Nicholas Coubard, Olivia Reyes, Calum Walton, Roy Bailiff, Nicholas Kopec, Dr. Gary Cloud, and pictured in the car is James Provax.
Dr. Geoffrey Recktenwald, ME teaching specialist, is described by many of his students as a professor who motivates them to put in the time and effort needed to be successful in class. Students enthusiastically declare, “He challenges us, but does not try to break us.” He teaches with “enthusiasm that is hard to find, making sure that the concepts are understood so that everyone understands the material.” He is passionate about his courses and his teaching. This is reflected in the comments of students who refer to him as “patient and caring.”

His interests do not stop at the equation or figure; he embraces the potential in each of his students demonstrated by the effort he genuinely makes for each individual in his classes. His students say that he sets all of them up to succeed and champions the high expectations he demands. By being thought provoking and fair, he “resonates, inspires, and drives one to succeed.

Dr. Recktenwald is a Michigan native with bachelor’s degrees in mechanical engineering and physics from Cedarville University in Ohio. After receiving his Ph.D. in 2006 from Cornell University, he remained to teach engineering courses in the Department of Mechanical Engineering, Theoretical and Applied Mechanics, and Mathematics. In 2009 he began pursuing post-doctoral work at the University of Texas at Austin. He joined the MSU ME department in Fall 2013.

His research interests are focused on best practices for student learning and student success. He is currently developing and researching SMART assessment, a modified mastery learning pedagogy for problem based courses. He created and co-teaches a multi-year integrated system design (ISD) project for mechanical engineering students and is the faculty mentor for the Human Powered Vehicle Team. He is a mentor to mechanical engineering graduate teaching fellows and actively champions the adoption and use of teaching technologies.

In addition to teaching and working with students, he is active at Red Cedar Church, plays soccer and hockey, and enjoys an occasional bridge game.

Professor Geoffrey Recktenwald received the 2021 Withrow Teaching Excellence Award last spring at a special awards luncheon and ceremony. He was presented with an inscribed plaque, a medallion, and a small stipend. Each year a committee consisting of student representatives from ASME and Pi Tau Sigma reviews nominations from ME juniors and seniors and makes the selection. This is the second time Dr. Recktenwald has received this award.

ME Bulletin

The ME Bulletin is published twice a year (fall & spring) for sophomores, juniors, seniors, faculty, and staff of the Department of Mechanical Engineering. Photographs were taken by Craig Gunn unless noted otherwise.

Send all correspondence to:
Gaile Griffore, Newsletter Editor
Dept. of Mechanical Engineering
Michigan State University
2560 Engineering Building
East Lansing, MI 48824-1226
Telephone: 517-355-3338
griffore@egr.msu.edu

In This Issue

Professor Recktenwald Receives Teaching Award................................................. 2
Department News ............................................................................................... 3
Grimm/Bush Award / Curriculum News.............................................................. 4
Take Some Time to Think by Craig Gunn / December Graduates ..................... 5
Harvesting Energy from Vibrations by Dr. Tai ................................................ 6
About Cryogenic Engineering by Dr. Knudsen ................................................. 7
Aachen Program / ASME / Academic Advising.............................................. 8
Dean’s List ............................................................................................................ 9
SAE Baja and Formula....................................................................................... 10
Spring 2022 Senior Electives .......................................................................... 11
Fall Semester Calendar..................................................................................... 12
Dr. Bei Fan has joined the ME department as an assistant professor. Dr. Fan received her Ph.D. in mechanical and aerospace engineering from the University of California, San Diego in 2019 and then spent a year as a postdoc at the Lawrence Berkeley National Laboratory. Next semester she will be teaching ME 332. In her spare time, Dr. Fan enjoys Zumba, playing badminton and the Kalimba thumb piano.

Mr. Roy Bailiff has retired from MSU after 25 years as the ME department’s technician. Roy managed the Engineering Building machine shop and the Jolly Road shop where the Formula, Baja, Solar car, and concrete canoe groups construct their projects. He was also responsible for maintaining the ME department’s teaching laboratories. Roy is a past chair of the American Welding Society which presented him with the Certified Welding Inspector (CWI) award. He has received countless other awards, including the Gloria Stragier Award for Dedicated and Creative Service. He has been a leader in developing weld quality program for many local industries, including the Board of Water and Light, General Motors, Demmer Corporation, and others. Roy taught ME 372-Machine Tool Laboratory for many years.

Mr. Jonathan Damon has joined the ME department as the ME department’s technician. Jon studied manufacturing technology at Lansing Community College (LCC). In addition, he has received an extensive background in precision machining technology at the Wilson Talent Center/Capital Area Career Center before graduating from Dansville High School in 2020. Jon has received many awards, including the Wilson Talent Center’s Outstanding Leadership Award.

Dr. Gary Cloud, University Distinguished Professor Emeritus has received two prestigious awards: 1) He has been honored with Senior Status by the International Society for Optics and Photonics (SPIE). SPIE Senior Members are honored for their scientific excellence across the broad spectrum of optics and photonics research and applications, their active involvement with the optics community and SPIE, and significant performance that distinguishes them from their peers. 2) He has also been selected to receive the 2022 C. E. (Chuck) Taylor Award which is given not more than once every two years. The award recognizes exemplary contributions to the field of Optical Methods and leadership in the Society for Experimental Mechanics (SEM).

Dr. Manoochehr Koochesfahani has been awarded the title of University Distinguished Professor in recognition of his exceptional teaching abilities, prominent record of public service, and scholarly, creative and artistic achievements. The title is one of the highest honors that can be bestowed to a faculty member by the university. Dr. Koochesfahani received his Ph.D. from the California Institute of Technology in 1984 and came to MSU in 1987. His research interests include Turbulent shear flows and turbulent mixing, unsteady fluid mechanics and aerodynamics, optical diagnostics techniques, molecular tagging diagnostics, Quantum Dot (QD) imaging of fluid flow.

Dr. Ahmed Naguib has received a Fulbright U.S. Scholar Award to Germany. He will carry out research at the University of Rostock as part of a project to study impinging jet arrays using Magnetic Resonance Velocimetry and Thermometry (MRV/T). The goal of the project is to develop, and transfer to MSU, expertise in a cutting-edge diagnostic technique in fluid mechanics research. Fulbrighters engage in cutting-edge research and expand their professional networks, often continuing research collaborations started abroad and laying the groundwork for forging future partnerships between institutions. Upon returning to their home countries, institutions, labs, and classrooms, they share their stories and often become active supporters of international exchange, inviting foreign scholars to campus and encouraging colleagues and students to go abroad. As Fulbright Scholar alumni, their careers are enriched by joining a network of thousands of esteemed scholars, many of whom are leaders in their fields. Fulbright alumni include 60 Nobel Prize laureates, 86 Pulitzer Prize recipients, and 37 who have served as a head of state or government.

Undergraduate Program Educational Objectives

Michigan State University

Department of Mechanical Engineering

Michigan State University

(Approved by the ME Department Faculty on December 10, 2015)

Our graduates will:

• Be competent and ethical engineers practicing in a diverse range of activities.

• Use their mechanical engineering education as a stimulus for personal and professional growth.

• Be recognized for their capability, creativity, and application of knowledge.

• Be independent and critical thinkers who identify problems and develop effective solutions.
Spartan Engineers Help Advance Diversity in ASME

Two ME faculty members are among those sharing a national medal for their ongoing commitment in helping the American Society for Mechanical Engineers (ASME) develop and implement diversity and inclusiveness practices.

Professors Tammy Reid Bush, Michele Grimm and the members of the ASME Bioengineering Division’s Women’s Networking Group were awarded the ASME Johnson & Johnson Consumer Companies Inc. Medal this summer. The award recognizes their national leadership in strategically improving gender diversity and inclusiveness within the bioengineering division.

Dr. Bush is the interim chair of the ME department, and Dr. Grimm is the Wielenga Creative Engineering Endowed Professor.

“We were honored that our efforts to broaden workplace diversity initiatives received this prestigious medal,” said Dr. Grimm.

Dr. Bush noted that women in the Bioengineering Women’s Networking Group have been developing diverse leaders for almost two decades.

“The fact that the number of women receiving ASME honors is in the rise helps increase the visibility of female role models and encourages even more opportunity,” she added.

ASME has been supporting an annual summer bioengineering conference since 1993. Since 2015, the Summer Biomechanics, Bioengineering and Biotransport Conference has provided a forum for bioengineering researchers and educators that includes workshops, poster sessions, exhibits, a career fair and paper competitions.

Michele Grimm and Tammy Reid Bush earn national recognition for their dedicated support of diversity and inclusion.
Take Some Time to Think
by Craig Gunn, Director of Communications

With the world in the condition it is in and the political scene bending the ear of everyone who can hear, maybe there is something that has been lost in our lives that we could easily bring back. Well, maybe easily! A previous president of Michigan State University, Clifton Wharton, when asked what he would say to the students of today, he simply said, “THINK!” I would agree with him completely, but I think we hear his message and fail to realize that it isn’t just students who need to THINK.

We are at a place in our history where many, many people do not take any effort to actually think. They spout the words of others without even thinking if the words said have any basis in fact. They run screaming from issues without taking a moment to understand what they are screaming about. It is not a situation where you can point a finger at one group of people or another. It is rampant everywhere. So what does that have to do with an engineer, especially you?

As society becomes more and more solidified in beliefs that have no foundation in truth, it will become harder and harder to get things done. If no one wants to admit that you as the engineer have an enormous amount of knowledge to base your decisions on, nothing will succeed. Personalities will take center stage and real-life issues will be left behind.

The time is now to practice your profession. Keep a steady eye on all the facts that surround your studies. Build a foundation that speaks to truth and understanding. Discuss those elements with your friends and acquaintances and continue to communicate what you stand for as an engineer – an individual who holds paramount the safety, health and welfare of the public in the performance of your professional duties. Your actions and words will communicate it all.

102 Seniors to Graduate in December!

Congratulations to all mechanical engineering December graduates! On behalf of the ME faculty, I wish you the greatest happiness and success in your careers, graduate studies, and personal lives. The following students had applied for graduation by October 15. If your name is missing, please contact me immediately (Email Gaile at griffore@egr.msu.edu) Tele: 517-355-3338).

• Your “Diploma Name” was not available when the ME Bulletin went to press. However, the Registrar will be contacting you to ask how you want your name to appear on your diploma.

• The Commencement Office now requires candidates to register to participate in a ceremony (walk). Here is the link: https://commencement.msu.edu/graduate-information

Jose Alcantar
Khalid Alhammadi
Zach Atkins
Jack Beddow
Dan Bojanowski
Ameya Bokil
Sebastian Bosoc
Josh Bravo
Brandon Burlage
Jeremy Busch
Jack Campbell
Oriol Canellas Salles
Yuandalei Cai
Peter Caruso
Tadiwa Chiduma
Jake Coffey
Cayla Coury
Lily Craigmilich
Conner Curnette
Ethan Curtiss
Vince Cushing
Andrew DeBaker
Noel Dyde
Chelsey Ely
Andrew Emery
Nate Farhat
Jake Frelich
Andy Fulbright
Jacob Genaw
Sean Gielow
Matthew Good
Matt Greene
Roman Grishin
Colin Hachey
Marvin Haddad
Andrew Hall
Annalea Hanslits
Lazerick Hill
Fritz Hittner
Drew Hubbard
Noah Hubbard
Rolanda Hutson
John Jaaska
Kelsey Karasek
Nolan Kerwin
Jared Koekkoek
Rob Kolpsky
Kaushik Kothakonda
Justin Kowalchik
Ryan Langan
Drew Larson
Mitchell LeBlanc
Chris Li
Sean Lishawa
Santos Lopez
Jessica Lypka
Nick Masini
Brad McMahon
Douglas Mcanney
Austin Meisel
Greta Myran
Garrett Novak
Kyle Patton
Lehomm Pickard
Race Piontkowski
Alexia Pohl
Jimmy Provax
Devon Pung

Aaron Rakowski
Katianne Rausch
Andrew Retzlaff
Daniel Reynolds
Karisa Rodeghiero
Ryan Rowe
John Royston
Matt Schram
Deshawn Schwan
Vasha Sedlacek
Hammer Shalawylo
Samar Sheikh
Jack Sikkema
Adam Sliwinski
Alec Smerage
Max Smith
AlainSotolongo-Carballo
Bryce Sutton
Noah Terech
Kepler Tiedje
Emma Turkmani
Bobby Vette
Dayana Villagran
Mackenzie Wagner
Vanessa Wang
Nic Weller
Mike Wichman
Yang Xu
Justin Yan
Tahha Zahid
Abdelrahman Zebdi
Jacob Zettle
Andy Zhao
Yu Xin Zheng
In the last decade, harvesting energy from vibrations has become a research frontier. Vibrations are commonly seen, e.g., in automobile suspensions and offshore floating platforms. The average recoverable energy from automobile suspensions is estimated to be around 5% of the total transportation energy consumption in the U.S while it is estimated that the annual average wave power incident on the ocean-facing coastlines of North America is over 400 GW (about 80% of the electricity consumption for the entire continent).

Despite the enormous resources, a fundamental problem hinders the evolution of vibration energy harvesting: energy harvesting and vibration mitigation are conflicting objectives. Dr Wei-Che Tai, principal investigator of the Harvesting Energy from Vibrations by Dr. Wei-Che Tai, is working with his students to develop a novel energy regenerative vibration absorber — a device that can concurrently achieve high-efficiency energy harvesting and effective vibration mitigation via converting vibration energy of structures seeking vibration mitigation to useful electricity.

His team applies principles of electromechanical system design, vibration instrumentation, and signal processing to prototype and experimentally characterize the device, and simulate/analyze its dynamics when incorporated in vehicle suspensions and offshore platforms using computation software.

Through these comprehensive approaches, his team aims at establishing fundamental knowledge of energy harvesting and vibration mitigation.
Cryogenic engineering involves the mechanical and thermal-fluids design of systems that operate at temperatures from liquefied natural gas down to helium (from -260 to -452 degrees Fahrenheit).

These systems are necessary nationally and internationally for the aerospace, industrial gas, power industries, and for government and private organizations performing subatomic particle and low-temperature research. And, they will be critical for the hydrogen economy. These are complex systems, and their design requires a firm understanding and application of thermodynamics, heat transfer, fluid mechanics, and mechanical design, while taking into account non-ideal fluid and material properties. In addition, thermal-mechanical optimization and integration is inherent in their design.

MSU’s College of Engineering and its Mechanical Engineering Department, in collaboration with the Facility for Rare Isotope Beams (FRIB) at MSU, offer three cryogenic engineering courses to introduce students to various aspects of the field.

**Available courses:**

**ME414-Mechanical Design of Cryogenic Systems** is offered during fall semesters. It focuses on:
- Mechanical design of cryogenic piping systems
- Analysis of stresses due to process conditions such as pressure, temperature, and momentum
- Optimization and trade-off of the thermal and mechanical design
- Incorporation of non-constant material properties
- ASME design codes (to give students an understanding of what is required in the industry)

**ME413-Cryogenic Thermal Systems** is offered during spring semesters. It focuses on:
- Thermodynamics of cryogenic process cycles
- Ideal cycles and real cycles
- The concept of exergy (or availability)
- Modeling of components
- Cryogenic distillation (how gas mixtures with boiling points substantially below the environment are separated)
- Vacuum systems (integral to the thermal insulation)
- Instrumentation

**ME940-Cryogenic Process Engineering** (the graduate class) is offered every other fall. This class continues where the previous two classes left off, focusing in greater detail on the thermal-fluid process design and analysis aspects of cryogenic systems. The next course is planned for fall 2022. The MSU Cryogenic Initiative ([frib.msu.edu/cryoinitiative](http://frib.msu.edu/cryoinitiative)) is a collaboration between FRIB and MSU’s College of Engineering. It offers opportunities for graduate students interested in applied research in cryogenic engineering. Contact Dr. Venkatarao Ganni (ganni@frib.msu.edu), Dr. Pete Knudsen (knudsen@frib.msu.edu), or Dr. Nusair Hasan (hasann@frib.msu.edu) for more information.

**About Cryogenic Engineering** by Dr. Pete Knudsen

Temperature-entropy diagram for FRIB’s Central Helium Liquefier (CHL)

FRIB’s Sub-atmospheric Cold Box (SCB) which houses five cryogenic centrifugal compressors necessary to achieve 2 Kelvin.
The MSU—RWTH Aachen Program is an extraordinary opportunity for juniors and seniors to spend a summer abroad in Germany. Like many other programs, it has been shut down over the past two summers due to the pandemic. However, barring the unexpected, we are planning as if the program will resume during the summer of 2022.

MSU ME students with a 3.0 GPA or higher eligible to apply. Participants in the MSU-RWTH Aachen exchange program will earn 9 credits via a 5-credit independent study plus a 4-credit German class, and travel in Europe on 3-day weekends. The program runs from mid-May to late July. The experience involves interaction with fellow engineering students from around the world at RWTH—Aachen, a premier European technical university. Significant scholarships through the North American Rockwell Endowment can help defray the cost.

Project topics are in the areas of automotive engineering, plastics, advanced and composite materials, textiles, manufacturing technology and automation, bio and chemical processing, wind energy, and aerodynamics. The program enjoys a cooperation with RWTH’s Undergraduate Research Opportunities Program, giving students access to tours, trips, and workshops.

Aachen is a blend of an old, historic European city and a modern college town. A well-maintained bike path allows easy intimate access to the nearby small towns, forests and farmlands. An outstanding rail system provides our students connections to Munich, Paris, Amsterdam, Zurich, Rome, the Alps, the Mediterranean, and many more cultural and natural destinations on their 3-day weekends.

Toss away your angst and embrace your wanderlust! Make this your plan A. But in case the pandemic surges again, always be adaptable with a plan B. Feel free to contact me at feeny@egr.msu.edu. This is truly a great opportunity—take advantage of it! A former participant, Jason, says, “The trip was the best experience of my life!”
Deadline: Nov 12

Dean’s List

Congratulations to these 499 ME majors who made the Dean’s List after Spring and Summer 2021. To be on the Dean’s List, you must have a semester GPA of 3.5 or better. This list is from October 5. For updates, go to http://www.reg.msu.edu/ROInfo/GradHonor/DeansList.aspx


MICHIGAN STATE UNIVERSITY

Fall 2021 ME Bulletin 9

Michigan State University


Baja SAE

The MSU Baja Racing team designs, builds, and tests an off-road Baja buggy every year, and competes at competitions across the nation. Club members gain valuable experience in design, professionalism, shop etiquette, teamwork, the engineering cycle, and real-world application of classroom skills. The Baja Racing team invites individuals from any background to join the team, from those who have never even held a wrench to those who could build the car on their own.

This semester, the team has doubled down on the design stage, and has spent drastically more time and effort in predicting and simulating the dynamics of the car. With more and better simulations, it will reduce the amount of time that needs to be dedicated after the car is built to solely tuning the dynamics, allowing for that time to be spent on more rigorous testing of the vehicle to determine any revisions or fixes needed prior to competing. Along with that, new innovations to the car have been made to comply with the racing series’ new rules that require cars to have 4-wheel-drive. With this new constraint, it has allowed the team to drastically alter the fundamental principles of the car and its assembly, from high-level concepts such as packaging to more technical alterations such as rotating the engine to reduce drivetrain losses.

Joining the team is as easy as reaching out to our email address, rso.baja@msu.edu. Submitted by Max Stull, Project Manager.

Formula SAE

The Michigan State University Formula Racing Team is preparing for the upcoming Formula SAE Michigan competition in May. As our design phase ends, we start entering our manufacturing phase. This will continue into winter break, during which our vehicles chassis, suspension, powertrain, and electronics will be manufactured.

In addition to this, we have finished the recruitment of our new team members for this season and are starting to introduce them to what we do that make us a top-10 team nationwide. With 200 days to go till the event at the Michigan International Speedway we have a lot of work ahead of us, but we are ready for the challenge.

We know what it takes to build one of the most capable Formula SAE cars and are aiming for that first-place podium to make Spartan Engineers and MSU proud. Go Green, Go White, Go Fast! Submitted by Povilas Kvederas, General Operations Member.

Car 38 pictured at the start line of the Pittsburgh International Speedway Competition track.
SPRING SEMESTER SENIOR ELECTIVES

The asterisk (°) after a course number indicates that it has been officially designated as “Design Intensive.” The instructor information is subject to change.

ME 413 Cryogenic-Thermal Systems. 3(3-0). Prereq: (ME 410 or concurrently). Hasan/Knudsen.
ME 417° Design of Alternative Energy Systems. 3(3-0). Prereq: (ME 410 or concurrently). Bénard.
ME 426 Introduction to Composite Materials. 3(3-0). Prereq: (ME 222). Xiao.
ME 433 Introduction to Computational Fluid Dynamics. 3(3-0). Prereq: ME 410 or concurrently. Gao.
ME 441 Aerodynamics and Aircraft Performance. 3(3-0). Prereq: (ME 332). Allison.
ME 442° Turbomachinery. 3(3-0). Prereq: (ME 332). Engeda.
ME 445° Automatic Powertrain Design. 3(3-0). Prereq: ME 444. Schock.
ME 456° Mechatronic System Design. 3(2-3). Prereq: (ECE 345 or concurrently) and (ME 391 or concurrently). Zhu.
ME 464 Intermediate Dynamics. 3(3-0). Prereq: (ME 361). Recktenwald.
ME 465° Computer Aided Optimal Design. 3(3-0). Prereq: (ME 222 and ME 280) and (ME 370 or concurrently). Online Course. Averill.
ME 477 Manufacturing Processes. 3(3-0). Prereq: (ME 222) and (MSE 250). Guo.
ME 478° Product Development. 3(3-0). Prereq: (ME 477). Chung.
ME 490 Independent Study. 1-4 credits. See Override Instruction #2 below. You may reenroll for a maximum of 6 credits.
ME 491° Selected Topics in Mechanical Engineering. Section 001 (1 credit): Integrated Systems Design. See Override Instruction #1 below. Students should consider taking this course for three semesters to receive a total of 3 credits and fulfill the design intensive senior elective requirement. This is a project based course and students should be available outside of class for team meetings, project work, and design reviews. Prereq: None. Recktenwald/Resh.
ME 495 Tissue Mechanics. 3(3-0). Prereq: (ME 222). Biomedical Concentration Course. Grimm.
ME 497° Biomechanical Design in Product Development. 3(3-0). Prereq: (ME 370 or concurrently). Biomedical Concentration Course. Bushi/Nguyen.
BE 444 Biosensors for Medical Diagnostics. 3(3-0). Prereqs: (BS 161) and (CEM 141) and (ECE 345). Biomedical Concentration Course. TBA.
CHE 483 Brewing and Distilled Beverage Technology. See Override Instruction #3 below. See the Schedule of Courses for location information. Prereq: (Age 21 or higher) and (Senior standing) and (ME 410-Heat Transfer or concurrently). Shriner.
ENE 422 Applied Hydraulics. 3(2-2). Prereq: ME 332. Pokrhel.

Graduate Level Courses: Honors College members and/or students with 3.5+ GPAs might consider taking a graduate course as a senior elective. Before enrolling, several signatures, including that of the instructor, are required. Possible choices for Spring 2022 include ME 814, 825, 861, and 872. See Override Instruction #4 below.

**SENIOR ELECTIVE OVERRIDE INSTRUCTIONS**

1) General Override Request Procedure: Complete and submit the ME Override Request Form: [https://www.egr.msu.edu/me/me-override-request](https://www.egr.msu.edu/me/me-override-request) Please note that the ME department cannot overfill required courses to resolve conflicts with Senior Electives, Other Electives, Integrative Studies courses and employment schedules.

2) ME 490—Independent Study Enrollment Procedure: Find a professor who is willing to supervise your independent study, and discuss your plans with him/her. Complete an ME 490/490H Enrollment Contract (independent study form), available in the ME Advising Office in 2560 EB. After you and your professor have completed and signed both sides, return the form to the ME Advising Office for the remaining signatures, override, and enrollment.

3) CHE 483—This course has a maximum enrollment of 100. When it is full, no additional overrides will be given. You can still add your name to the wait list, but it would be a good idea to enroll in a back-up course.

4) Complete the Graduate Course Override form, which can be obtained from Gaile (griffore@egr.msu.edu).
Fall Semester Calendar

November 12  All currently enrolled students who have not enrolled by 8 p.m. in at least one course for Spring will pay a $50 late fee.
November 19  **Deadline for Withrow Teaching Award Nominations.** The nomination form is on the ME website [https://www.egr.msu.edu/me/](https://www.egr.msu.edu/me/). [Click on Undergraduate, and then Forms and Policies.]
Nov 25-26  Thanksgiving recess
December 10  **Last day of classes & Design Day.**
Dec 13-17  Final Exams
December 18  Undergrad Commencement Ceremony-1:00 p.m. in Breslin. Lasts about 2 hours.
Dec 18-Jan 9  Semester Break
January 14  On-line Open Add Period for Spring 2022 ends at 8 p.m. **Also,** this is the deadline for May 2022 and August 2022 graduates to apply for graduation and have their names printed in the commencement program.
March 14  Scheduled Computer/Telephone Enrollment period for summer semester begins.
~April 1  Computer Enrollment period for fall/spring 2022-2023 begins. Note: Exact date TBA.

MSU is an affirmative action, equal opportunity employer. MSU is committed to achieving excellence through cultural diversity. The university actively encourages applications and/or nominations of women, persons of color, veterans and persons with disabilities.