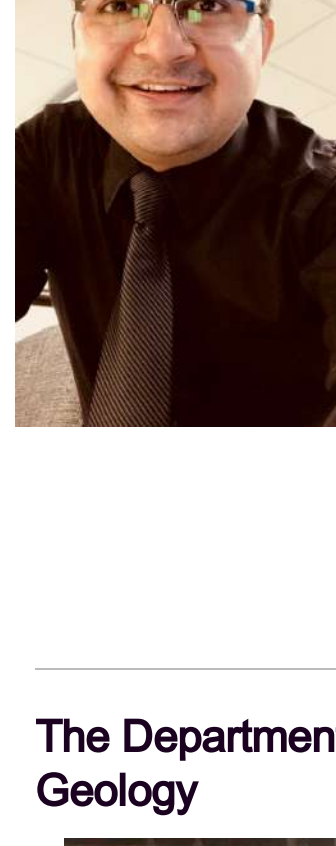
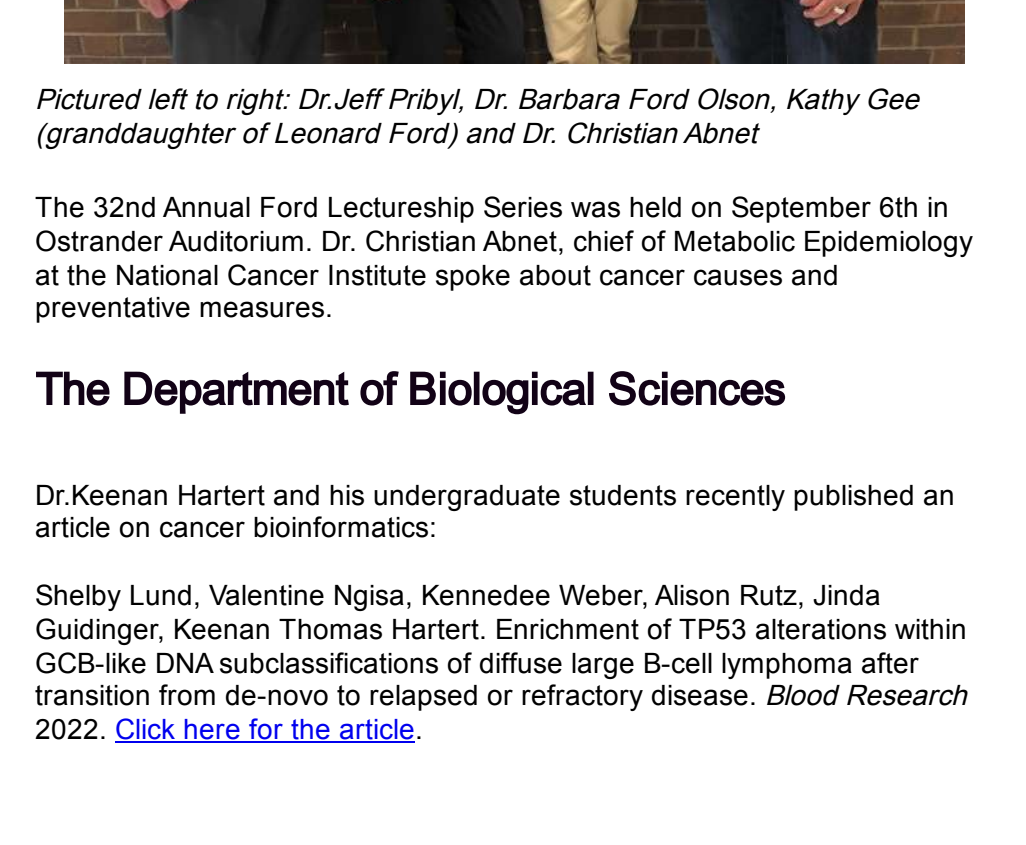


The Department of Automotive and Manufacturing Engineering Technology



Pawan Bhandari, PhD, joined AMET department as a tenure-track faculty member (Assistant Professor) in the Fall of 2022. Prior to joining the department, he was working as a Principal Health Systems Engineer at Mayo Clinic. He brings 10+ years of Engineering/Management Consultant and Quality Experience in both manufacturing and service sector. He completed his BS and MS from Minnesota State University, Mankato, Minnesota, prior to completing his PhD in Technology Management from Indiana State University, Terre Haute, IN. His research interests include but are not limited to application of manufacturing principles in service sector (especially healthcare), Lean, Six Sigma, Operations Management, and Quality systems. He is also certified Change Management Practitioner from Project Management Institute (PMI), and is a member of American Society for Quality (ASQ) Certified Six Sigma Black Belt (CSSBB), and Certified Quality Improvement Associate (CQIA). He enjoys traveling to new places with his family.

The Department of Biochemistry, Chemistry & Geology



Pictured left to right: Dr. Jeff Phibby, Dr. Barbara Ford Olson, Kathy Gee (granddaughter of Leonard Ford) and Dr. Christian Abnet

The 32nd Annual Ford Lectureship Series was held on September 6th in Ostrander Auditorium. Dr. Christian Abnet, chief of Metabolic Epidemiology at the National Cancer Institute spoke about cancer causes and preventative measures.

The Department of Biological Sciences

Dr. Keenan Hartert and his undergraduate students recently published an article on cancer bioinformatics.

Shelby Lund, Valentine Ngisa, Kennedee Weber, Alison Rutz, Jinda Guidinger, Keenan Thomas Hartert. Enrichment of TP53 alterations within UCS-like DNA subpopulations of diffuse large B-cell lymphoma after transition from de-novo to relapsed or refractory disease. *Blood Research* 2022. [Click here for the article.](#)

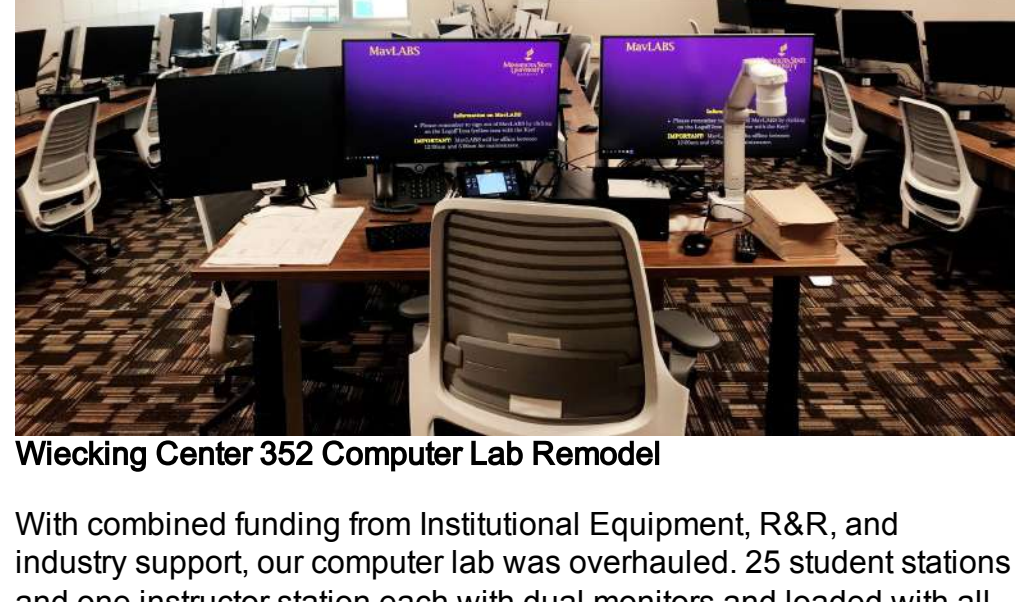
The Department of Computer Information Science



The Computer Science Program has officially moved to their new space in Carlsoski Commons! With over 300 students enrolled in the project-based program—the space emphasizes the collaborative nature of working as professionals. Several conference areas are available for students to Zoom with industry partners and there is also an open space for lectures and teamwork.



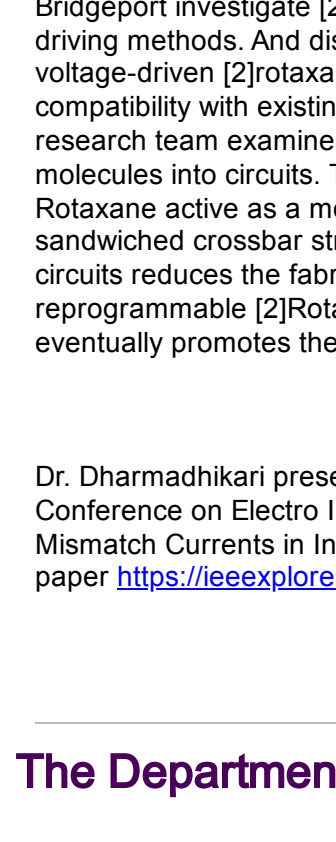
The Department of Construction Management



The Construction Management Student Association held their annual golf classic at Northlinks Golf Course on September 16th. This was CMSA's largest golf classic ever. With 25 companies, they were able to host over 50 industry professionals and over 50 students!



With combined funding from Institutional Equipment, R&R, and industry support, our computer lab was overhauled. 25 student stations and one instructor station each with dual monitors and loaded with all the latest software needed to prepare students for industry!



Welcome Jessica Wagner, JD

Jessica Wagner joined the Construction Management Department as an adjunct professor this Fall. Her specialty is Risk Management and Construction Law. Jessica is the current Associate General Counsel with McGough Construction Co., LLC.

The Department of Electrical and Computer Engineering Technology

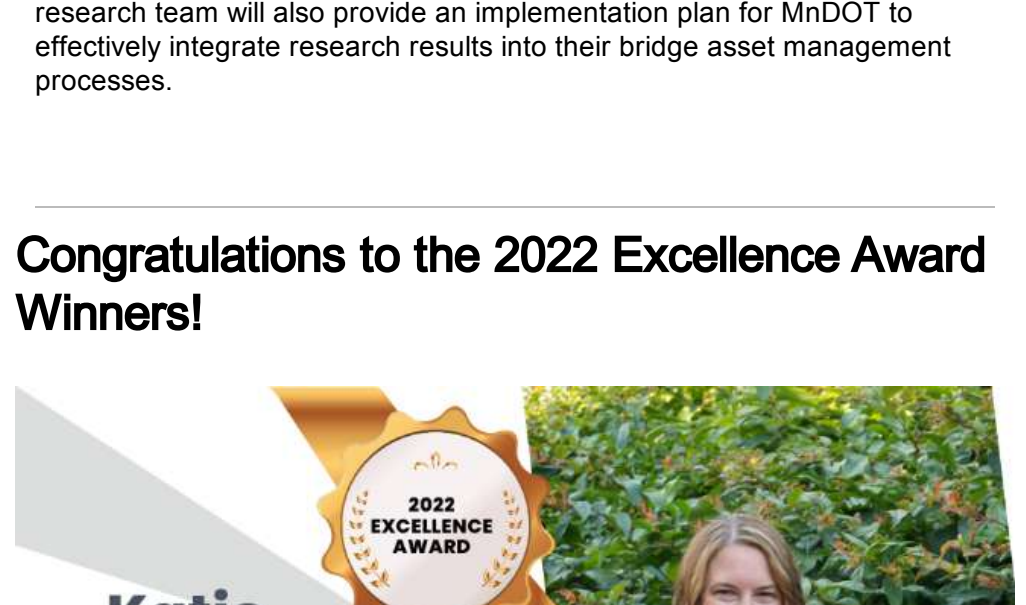
On June 24, 2022, Dr. Bhushan Dharmadhikari published a comprehensive review article on the use of Rotaxane in molecular electronics applications: Peiqiao Wu, Bhushan Dharmadhikari, Prabir Patra and Xingqiao Xiong, "Rotaxane nanomachines in future molecular electronics," *Nanoscale Advances*, Royal Society of Chemistry, 4, 3418-3461, DOI: 10.1039/D2NA00057A.

<https://pubs.rsc.org/en/content/articlehtml/2022/na/d2na00057a>

In the first part, Dr. Dharmadhikari and collaborators from the University of Bridgeport investigate [2] Rotaxane's electrical characteristics with different driving methods. And discuss the design considerations and roles based on voltage-driven [2] Rotaxane switches that promise the best performance and compatibility with existing solid-state circuits. In the second part, the research team examines the solutions for integrating [2] Rotaxane molecules into circuits. The innovations learned from these devices keep [2] Rotaxane active as a molecular switch. Finally, applying a proposed sandwiched crossbar structure and architecture scheme to [2] Rotaxane circuits reduces the fabrication difficulty. That also extends the possibility of reprogrammable [2] Rotaxane arrays, especially at a system level. Which eventually promotes the further realization of [2] Rotaxane circuits.

Dr. Dharmadhikari presented a paper at the 2022 IEEE International Conference on Electro Information Technology, "Analyzing the Effects of Migration Currents in Interferential Current Therapy." Complete link to the paper <https://ieeexplore.ieee.org/abstract/document/9813761>

The Department of Integrated Engineering



This year marked the second annual Twin Cities Engineering STEM Day booth. Student volunteers spent the day taking in the fair and promoting engineering while representing Twin Cities Engineering and Minnesota State University, Mankato. True to the integrated nature of our program, our booth incorporated mechanical and electrical engineering aspects through the lens of renewable wind energy.

Faculty News:

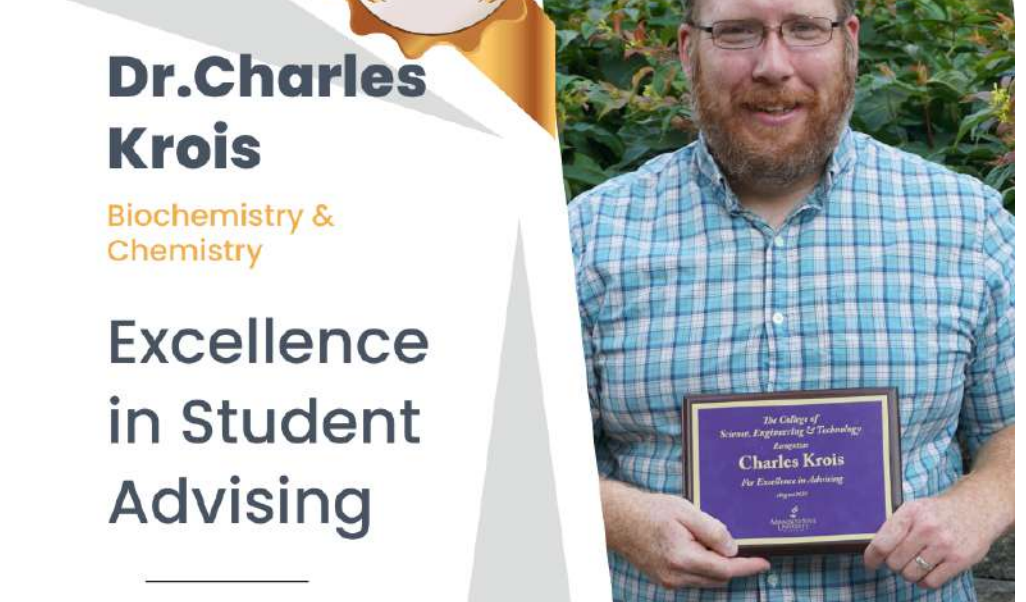
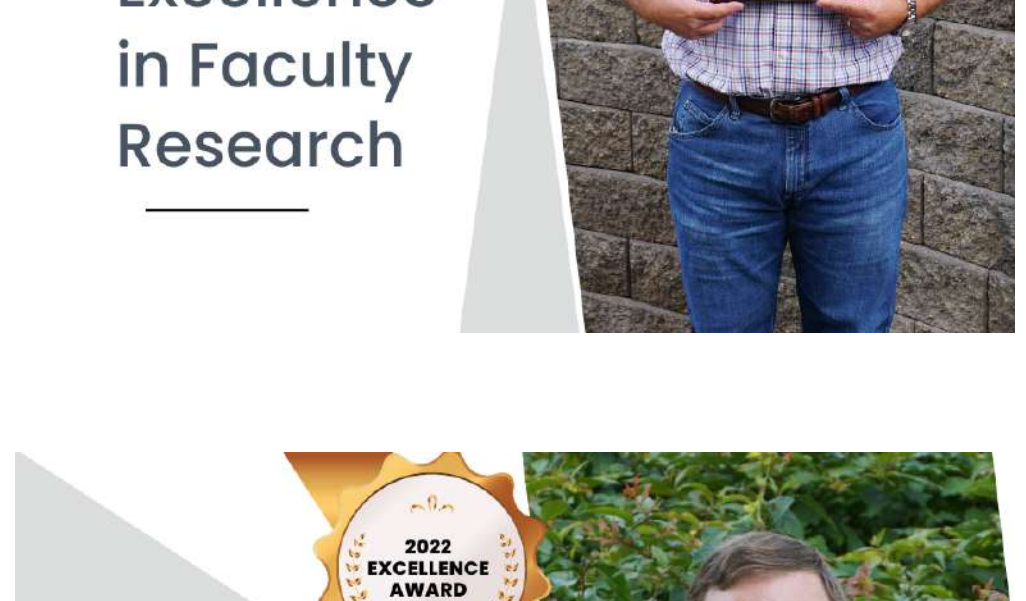
Dr. Catherine Spence and Dr. Emilie Silverling with the Department of Integrated Engineering received an NSF S-STEM (Scholarships in STEM) Award, "Iron Range Engineering Academic Scholarships for Co-Op Based Engineering Education." The six-year award will provide financial and mentorship support for low-income, high-achieving students to complete their engineering degree while working in engineering co-ops with Iron Range Engineering. The award is for \$1.5 million; \$1.2 million of that will go directly towards student scholarships to support their first semester with Iron Range Engineering before starting their co-op and earning an engineering co-op salary.

Dr. Rob Sleezer, Dept of Integrated Engineering, co-authored a paper published in ACS Applied Materials & Interfaces **2022**, 14 (29), 33944-33951. The article is titled "Band, Effects of the MOCVD-Grown Bi- (Al_{0.21}Ga_{0.79})₂O₃/Bi-Ga₂O₃ (010) Heterostructure."

The Department of Civil and Mechanical Engineering

Dr. Besak Bektas was recently awarded a grant from MnDOT to conduct research on bridge treatments. The objectives of the research are to develop bridge element condition indexes that will guide cost-effective life cycle treatment selection, to develop a process and a tool to rank bridges with treatment categories based on the developed indexes, and to provide MnDOT with updated performance measures, targets, and a process which will manage Minnesota bridge assets with minimum life cycle costs. The research team will also provide an implementation plan for MnDOT to effectively integrate research results into their bridge asset management processes.

Congratulations to the 2022 Excellence Award Winners!



Water Resources Center



Minnesota State Park Field Day – WRC staff and students helped to bring 250 biology students from Mankato East to Minnesota State Park for a field day on September 20, 2022. This environmentally focused field day included nine stations across the park where students could learn directly from natural resource professionals about indigenous history, American Bison, prairies and big woods, birds, Minnesota River fish, geology, macroinvertebrates and water quality. The organizing team for the day included Julia Batteren, a Mankato East High School Biology teacher, Brooke Hecker and Scott Kulekta, from the Minnesota Department of Natural Resources and WRC staff and students.

Advancing Cover Crop Adoption

WRC received a grant from University of Minnesota Regional Sustainable Development Partnerships to gather advice and lessons learned from groups across state into short case studies that highlight diverse, proven approaches with actionable steps for conservation partners to accelerate soil health practice adoption in their area. Throughout Minnesota, conservation partners (federal, state and local government staff) are working to engage farmers and encourage soil health practice adoption to improve water quality while maintaining productivity. However, rates of cover crop and other best practice adoption are highly variable geographically. In part because there is no one-size-fits-all to help conservation partners explore and learn about the variety of approaches that have been successful in other parts of the state. This is collaboration with University of Minnesota Extension.

Le Sueur Watershed Soil Health Initiative

WRC received a grant from the Fishers and Farmers Partnership to support a citizen-led initiative in the Le Sueur River Watershed to increase soil health practice adoption. The grant will provide free cover crop seed and application for participating farmers and advice from a crop consultant. The broader goal of the initiative is to increase cover crop adoption across the watershed by supporting outreach and education and connecting farmers to area resources and peers.

CSET Advising Center



Career Development Center



We want YOU to become a Career Champion! Upload your career development knowledge by joining this program in its inaugural year.

You are an integral member and role model in the Maverick community. Through your everyday work, you positively impact students' career development. We are eager to partner with you to increase insight and access to career development materials to elevate your work in this arena. Career Champions benefits include:

FREE Lunch up to 6 times per year at Lunch & Learn events!
Early access and insider knowledge to the latest and greatest career resources & information
Your participation increases equity and access for all students, propelling us closer to Equity 2030 goals
And more!

Onboarding Dates:
o Oct 26, 2022 @ 12:00p - 1:00p and 2:00p-3:00p Onboarding on Zoom
o Oct 26, 2022 @ 10:00a-10:00a Onboarding on Zoom
o January 23, 2023 @ 12:00p - 1:00p Onboarding on Zoom
o April 24, 2023 @ 12:00p - 1:00p Onboarding on Zoom

COMPLETE THE ENROLLMENT FORM TO JOIN NOW!
[LINK.MNSU.EDU/CHAMP](#)

Enroll Now!



Please encourage your students to attend our annual Career and Internship Expo. The Expo is a great opportunity for students to learn about employers and career paths connected to their majors.

Looking for help promoting your program, organization or upcoming event? Need photos? Want to submit an update for our newsletter or have an idea for our magazine? Reach out to [Emily Frederick](#), Communications & Marketing Director for CSET.