



OPUS COLLEGE OF ENGINEERING

Design Day

May 2, 2025



OPUS

College of Engineering

MARQUETTE UNIVERSITY

Dear Opus College of Engineering Community:



Welcome to our tenth annual Design Day, a celebration of the design and innovation that goes on throughout the Opus College of Engineering. I look forward to this event each year and the excitement it brings to our building.

Design Day is not only about recognizing the hard work our students have put into their projects over the past year, but it is just as much about celebrating how they have grown as innovators. I believe that with the right mindset and the curiosity to learn, we can all lead innovative projects that will create real, new value and solve some of the world's most pressing problems.

Each year I am proud to see that at the heart of all our student design projects, is a desire to deliver meaningful change. This year's projects continue to deliver on that. As you walk through Engineering Hall, you will see senior, first year, and other course-related design projects on display. I hope you will take a moment to talk with our students and hear more about their work. I am confident that you, too, will be inspired by what you learn.

On behalf of our students, I would like to thank our many generous senior design project sponsors, as well as our college faculty and staff. Without you, this day would not be possible.

Thank you for joining us to celebrate another great year of hard work, innovation, and the students who are already setting our world on fire.

Sincerely,

Kristina Ropella, Ph.D.

Opus Dean – Opus College of Engineering
Marquette University

Oral Presentations				Posters/Demos	
	Rm. 136	Rm. 236	Rm. 323	Lower Level, Levels 1 & 2	
8:00-8:30			CCEE Senior Design		8:00-8:30
8:30-9:00					8:30-9:00
9:00-9:30					9:00-9:30
9:30-10:00	ELEN/COEN Senior Design				9:30-10:00
10:00-10:30	MEEN Senior Design	BIEN Senior Design			10:00-10:30
10:30-11:00					10:30-11:00
11:00-11:30					11:00-11:30
11:30-12:00					11:30-12:00
12:00-12:30	Keynote* Marmon Holdings Inc.			BIEN Poster Exhibit & Competition (Levels 1 and 2)	12:00-12:30
12:30-1:00					12:30-1:00
1:00-1:30	MEEN Senior Design	BIEN Senior Design	CCEE Senior Design	Student-led Design & Course Design Projects (Levels 1 & 2)	1:00-1:30
1:30-2:00					1:30-2:00
2:00-2:30					2:00-2:30
2:30-3:00					2:30-3:00
3:00-3:30				GEEN Poster Exhibit & Competition (Levels 1 and 2)	3:00-3:30
3:30-4:00					3:30-4:00
4:00-4:30					4:00-4:30
4:30-5:00					4:30-5:00

* 12:00-1:00pm: Lunch will be available for keynote attendees

Design Projects

Poster Exhibits and Competitions

12:00 p.m. – 1:30 p.m.

Biomedical Engineering (BIEN) Poster Exhibit and Competition Levels 1 and 2

This session will include 16 posters from engineering students enrolled in BIEN 1110. This year's design project tasked students with designing and constructing a user-friendly assistive device to empower individuals with limited hand dexterity to enhance their ability to perform daily tasks and improve their quality of life.

1:30 p.m. – 3:00 p.m.

Student-Led Design and Course Projects Lower Level, Levels 1 and 2

Student-Led Projects

- Engineers without Borders (EWB) – Cruz Chich and Chumisa Water Treatment & Distribution System
- Rocketry Club

Course Projects

- Introduction to Programming
- Networks and Security
- Image Processing
- Introduction to Computer and Electrical Engineering

3:30 p.m. – 5:00 p.m.

General Engineering (GEEN) Poster Exhibit and Competition Levels 1 and 2

This session will include posters and mock-ups/prototypes from 16 design teams of new engineering students enrolled in GEEN 1210. The theme of these projects is Water and Energy Sustainability.

Keynote Presentation

12:00 to 1:00 p.m.

Don't Let Anyone Talk You into Average – Career and Mentorship Advice from a Marmon Holdings Executive

Engineering Hall 136

**Jeff Stupar, Vice President of Innovation – Industrial Products Group
Marmon Holdings Inc. | A Berkshire Hathaway Company**



Abstract

Jeff Stupar is a hands-on R&D leader and chemical engineer who's all about turning great ideas into real-world products. With a strong background in plastics materials and a passion for innovation, he's spent years developing new tech and bringing it to market—building patents and pulling together the right teams to make it all happen. At Marmon, he leads teams creating next-gen products that solve real problems for customers. He's big on listening first, working fast, and keeping things practical. He also launched an intern program that's helped young engineers kick off their careers—because he knows the next big ideas will come from fresh perspectives.

He's here to share some of what he's learned and maybe spark some ideas for where your engineering journey could take you next.

Biomedical Engineering Senior Design Projects

Engineering Hall 236

9:30-10:00

Device to Control Fluid Delivery to Children with Swallowing Difficulties

Clinical Advisors A. Morgan, C. Schindler, J. Schnell, Children's Wisconsin
Faculty Advisor: J. Goldberg
Team Members: S. Cascella, M. Kenny, N. Voglewede, I. Zabel, L. Montanari
MIAD Partners: A. Nadrasik, W. Gates

10:00-10:30

Device to Determine Volume of Air Delivered with AMBU Bag Ventilation

Sponsor: J. Tumalak, Marquette University School of Nursing
Faculty Advisor: G. Garcia
Team Members: A. Limon, M. Marquez, L. McCullough, F. Nuguid, R. Steffens

10:30-11:00

Bladder Emptying Device for Animal Spinal Cord Injury (SCI) Research

Sponsor and
Faculty Advisor: J. Hokanson
Team Members: M. Bochnak, D. Garcia-Avila, B. Vizcaino Guzman, G. Peterson

11:00-11:30

Remote Safety Testing of Portable Imaging Equipment

Sponsor: D.J. Quam, GE HealthCare
Faculty Advisor: L. Fan
Team Members: A. Linder, M. Gamble, Z. Khan, M. Clayton

- 11:30-12:00** **Development of a Novel Adaptive Toy for Children with Sensory Motor Challenges**
 Sponsor: V. Bjelic, Penfield Children's
 Faculty Advisor: M. Erickson
 Team Members: M. Filer, B. Bolz, P. Harrill, S. Riter, S. Peragine
 MIAD Partners: L. Moris, N. Chung, C. Thomas
- 1:00-1:30** **Battery-Powered Infant Ventilator for Low-Income Countries**
 Sponsor and
 Faculty Advisor: L. Olson
 Team Members: M. Kim, K. Rule, A. Healey, T. Butler, D. Fore
 MIAD Partners: J. Clayton, H. Houts, J. Hansen
- 1:30-2:00** **System to Alert Healthcare Providers and FDA of Imaging Findings Related to Drug Side Effects**
 Sponsor: A. Barrington
 Faculty Advisor: T. Sippel Schmidt
 Team Members: N. Rios, J. Torres, J. Nordan, D. Mingo
- 2:00-2:30** **Design and Fabrication of an Aquatic Landscape for Turtles Undergoing Rehabilitation**
 Sponsor: L. Rice, Wildlife in Need Center (WINC), Oconomowoc, WI
 Clinical Advisor: D. Neumann, MU Physical Therapy
 Faculty Advisor: S. Beardsley
 Team Members: A. Fons, I. Koeppen, J. Albert, R. Iskra, C. Seyfarth
- 2:30-3:00** **Tubeless/Wireless Monitoring of Arterial Blood Pressure**
 Sponsor and
 Clinical Advisor: J. Patel, Medical College of Wisconsin
 Faculty Advisor: S. Audi
 Team Members: A. Gunter, J. Kelly, K. Imanzi, P. Bohnart
 MIAD Partners: C. Briones, L. Mathew, A. Keebler

Confidential Project

Faculty Advisor: B. Yu
 Team Members: E. Raschke, J. Flores, M. Schlaefel, H. Jamiola

Civil, Construction, and Environmental Engineering Senior Design Projects

Engineering Hall 323

8:00-8:40 Arthur Ave Resurfacing

Mentor Organization: R. A. Smith

Lead Mentor: A. Stasiukevicius, P.E.

Associated mentors: J. Bruggeman, P.E., A. Utic, P.E., C. White, P.E.,

J. Diekfuss, PhD, P.E. (P4 Infrastructure)

Team Members: C. Olson, J. Perez, M. Montoya, S. Signorella

8:40 to 9:20 ARCO Design/Build Project

Sponsor: ARCO Design/Build

Mentors: J. Stefan and I. O'Mahoney

Team Members: C. Carlson, E. Mitchell, J. Owens, S. Molek, T. Nichols

9:20 to 10:00 Southeast Area Combined Sewer Improvements Phase 2

Sponsor: Strand Associates

Mentors: C. Bolle and N. Wellenstein

Team Members: A. McDonald, C. Carrillo, R. Pancotto, T. Staples

10:00-10:40 New Construction on Existing Conditions – Findorff (in MARVL)

Sponsor: J.H. Findorff and Son, Inc

Mentors: M. Stern and K. Hanan

Team Members: E. Smetana, J. Blaine, J. Mains, T. O'Regan

10:40-11:20 400 South Olympic Multimodal

Sponsor: City of Salk Lake

Mentor: M. Sizemore

Team Members: B. Lubeley, E. Fraser, M. Gallagher, S. Swinney

1:00-1:40 **Urban Redevelopment of Environmentally Impacted Site**
Mentor Organization: The Sigma Group
Mentors: Z. Meyer and C. Trautschold
Team Members: I. Struebing, K. Borem, M. Madureira Deboni, M. Audi,
N. DeGrazia

1:40-2:20 **Connecting the Campus**
Sponsor: HGA
Mentors: M. Zak, L. Knapp, G. Corbett, D. Foren
Team Members: A. Arnieri, J. Cieslewicz, V. Salvador, Z. Johnson

Computer and Electrical Engineering Senior Design Projects

Engineering Hall 136

9:30-10:00 **Plantelligence Smart Plant Monitoring System**
Sponsor: A. Crosby, WEM Automation
Faculty Advisor: C. Ababei
Team Members: K. Bebej, A. Borst, A. Esposito, K. Land, X. Mejia, N. Mika
MIAD Partners: O. Tetzlaff, T. Waters

Mechanical Engineering

Senior Design Projects

Engineering Hall 136

10:00-10:30 InnoVapor

Sponsor: Marquette University

Faculty Advisor: S. Singer

Team Members: M. Figueroa Hernandez, A. Jennings, N. Samaniego, M. Scott,
R. Zenke, A. Zizzo

10:30-11:00 Elephant Repeller

Sponsor: Marquette University

Faculty Advisor: V. Cariapa

Team Members: K. Coss, A. Feehan, J. Martin, A. Moses, B. Nguyen, T. Stevens

11:00-11:30 Buoy for Nautical Weather Data Collection System

Sponsor: Marquette University/Mast and MCSC

Faculty Advisor: A. Bowman

Team Members: I. Horder, I. Kaisner, J. Rovin, C. Seidl

11:30-12:00 Remote Nautical Weather Data Collection System

Sponsor: Marquette University/Mast and MCSC

Faculty Advisor: A. Bowman

Team Members: A. LoFaro, E. O'Rourke, A. Paulus, E. Whalen, A. Winklosky

1:00-1:30 Marquette Aerospace and Robotic Systems

Sponsors: Ramirez Family Foundation, Komatsu, Wisconsin Space Grant Consortium, Hernandez Family Construction LLC, El Rey Foods, J. Mercado Agency, Inc. American Family Insurance, FRC Team 1732 Hilltopper Robotics and Marquette University

Faculty Advisors: P. Voglewede and S. Cash.

Team Members: B. Castro, J. Cruz-Guzman, C. Davila, O. Hernandez, O. Ibarra, M. Mische, M. Rivera, O. Rivera Templos, A. Samuelson, N. Yah

1:30-2:00 **Low-cost Hydration Device**
Sponsor: Marquette University and Self-funded
Faculty Advisor: V. Cariapa
Team Members: A. Alzamli, Z. Anderson, G. Del Rosario, C. Engebretson, R. Guo,
B. O'Bryan, J. Ryan
MIAD Partners: A. Rosas, A. Schaus

2:00-2:30 **Marquette Eagle Racing Drivetrain**
Sponsor: Marquette University
Faculty Advisor: A. Dempsey
Team Members: J. Ament, B. Basulto, B. Boxall, C. Horaitis, C. Lang, D. Rodriguez,
W. Rooke, C. Sersen, P. Shemroske

Confidential Projects

Project 1
Sponsor: Husco
Faculty Advisor: J. Schimmels
Team Members: K. Dillon, D. Dominy, H. Frank, W. Gottschalk, P. Schulte

Project 2
Sponsor: Sentry Corp.
Faculty Advisor: A. Bowman
Team Members: C. Abenth, G. Conlon, J. Lundberg, K. Opp

Project 3
Sponsor: V. Moss, Strattec Corp.
Faculty Advisor: C. Allen
Team Members: B. Carty, J. Faber, A. Ochoa

Project 4
Sponsor: Marquette University
Faculty Advisor: V. Cariapa
Team Members: A. Cave, D. Gardetto, L. Gustafson, N. Hirsch, J. Martin, Q. Nguyen

Dear Graduating Seniors,

Congratulations on your upcoming graduation!

We in the Opus College of Engineering have watched you transform from freshman engineering students into dedicated, ethical, and mission-driven engineers with a desire to serve others.

Allow this mission to guide you and remain open to continued growth and transformation. You are the difference; go forth and set the world on fire.

We know that your career will benefit from the same commitment and effort that you devoted to your academic work.

We wish you the best!

Warmest Regards,
Opus College of Engineering Faculty and Staff



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