

Mechanical and Materials Engineering (MME) Department Projects

Time: 8.30am – 12pm (Harrington Auditorium)

1. Soggy-Free Food Container MQP

Students: Melissa Hasbrouck, Grace Maund, Julia Horrocks, Ava Labik, Molly Cronin, Rebecca Emme
Advisor: Mehdi Mortazavi

3. Tremor Reduction Device Using Vibrational Stimulus

Students: Elizabeth Bowman, Brendan May, Devin Kachadoorian
Advisor: Karen Troy

4. Designing a UUV and Updating a Parametric Design Tool

Students: Taniya Crosby, Marc Donahue, Sofia Eckerson, Samantha Germano, Benjamin Perrin, Mir Valentine
Advisors: Ahmet Sabuncu, Taneja Shubbhi
Sponsor: General Dynamics Electric Boat

5. Smart Thermal Management with EHD: From Earth to Orbit

Students: Ziyad Ali, William Cifone, Collin Mello, Aabid Peermohammed
Advisor: Jamal Yagoobi
Sponsor: National Aeronautics and Space Administration (NASA)

6. Design & Prototyping of a Low-Cost Lawn Waste Clean-Up Robot

Students: Grace Audette, Sean Hart, Aman Khalifa
Advisor: Joe Stabile

7. Prototyping a Variable Tilt-Axis Wind Turbine

Students: Nathan Oneill, Nathan Rubio, Kathryn Juliuson, Kemal Rifky

Advisors: Aswin Gnanaskandan, Ahmet Sabuncu

8. Formula SAE Electric Racecar: 2024-25

Students: Amanda Lota, Sean Obert, Sage Ugras, Eric Hughes-Baird, Steve Rosario, Pari Mandalapu, Samantha LeBlanc, Liam Jennings, Syrena Prytko
Advisors: William Michalson, Andre Rosendo

9. PMKS+: An Application for Generating and Analyzing Planar Linkages

Students: Jeremy Bornstein, Gabriel Curet-Irizarry, Javier DeLeon, Matthew Gatta, Sebastian Gurgol
Advisors: David Brown, Pradeep Radhakrishnan

10. Undersea Deployment of an Encapsulated Aerial Vehicle

Students: Ryan Bendremer, Trinity Gibbs, Sophie Sakamoto, Christian Healy, Benjamin Penti, Kyle Dinwoodie, Theresa Ng, Max Cisneros, Ian Sullivan
Advisors: Mehul Bhatia, Shana Lessing, Donald Brown
Sponsor: General Dynamics Electric Boat

11. 3D Printed Knee Brace

Students: Henry Ball, Nathan Russell, Jake Bowen, Lasya Thavanati, Mia Gilmore
Advisor: Joe Stabile

12. Designing Active Aerodynamic Components for Automotive Applications

Students: Cody Potvin, Nathan Holmes, James Kiefer, Bryce Lukacs
Advisors: Selcuk Gucer, Guanrui Li

13. Robotic Poop Scooper

Students: Jeremiah Maylum, Nate Levine, Simeon Hoffler, Bryce Illingsworth
Advisor: Joe Stabile

14. Cardboard Box Cutter

Students: Aman Hiregoudar, Megan Jordan,
Jeremy Peters, Gai Phan, Kevin Zhou
Advisor: Mehul Bhatia
Sponsor: Robosource, LLC

15. ADaRC: A Web-based Automated Circuit Designer and Code Generator for Arduino Circuits

Students: Myles Ku, Aaron Mar, Carlos Medina, Braeden Swain, Giovanni Larson Vasquez
Advisors: David Brown, Pradeep Radhakrishnan

16. An Autonomous Robotic Solution for Tool Replacement in Surface Finishing of Complex Internal Geometries

Students: Sarah Listzwan, Natalie Carrington, Benjamin Hayden, Alfredo Sanchez
Advisor: Yihao Zheng

17. Design of Disaster Relief Delivery Drone

Students: Ethan Nogueira, Ezequiel Gonzalez Solano, Antonio Varela
Advisor: Mustapha Fofana
Sponsor: MIRAD Labatory

18. Design and Testing of Rotational Speed Sensor with Zero Latency for Unmanned Ground Vehicle

Students: Jiayang Chen, Brady Hogan
Advisors: Vladimir Vantsevich, Lee Moradi, Hunter Zhang
Sponsor: Autonomous Vehicle Mobility Institute

19. Recycling Plastic Waste and Its Education

Students: Grayson Brooks, Dominic St. Pierre, Nicholas Prayner, Patrick Robock, Maxwell Smith, Alyssa Stoffel
Advisors: Mehul Bhatia, Bashima Islam

20. Tray Carry Assistive Device

Students: Davis Howland, Ashwin Sukthankar, Nicole Morris
Advisor: Eben Cobb

21. Energy Harvesting for the Army

Students: Alexander Kirkman, Matthew Saluzzi, Nicolas Olson
Advisors: Pratap Rao, Gregory Noetscher
Sponsor: DEVCOM Soldier Center

22. Environmentally Friendly Recycling of E-Wastes

Students: David Fitzgerald, Jesse Frey, Louis Heck
Advisor: Jianyu Liang

23. Wings of Gompei: Design, Analyze, Build, Test, and Fly an RC Plane

Students: Caitlin Bagdasarian, Andrew Costas, Ryan Malone, Katlyne Mio, Nick Sloan, Nguyen Vo
Advisor: Reza Ebadi

24. Design of a Getter-Based System for Reducing Absorbed Interstitial Elements in Metal Feedstock Powder During Heat Treatment

Students: Lauren Braconnier, Andrew Cunningham, Dylan Furtado, Audrey Johnson
Advisors: Kyle Tsaknopoulos, Danielle Cote

25. Sound Down: Targeted Noise Reduction in Indoor Environments

Students: Graham Ornstein, Henry Sica, Kaveer Malik, Jake Schwartz, Nicholas Szuba
Advisor: Joe Stabile

26. Neutron Generator Heat Exchanger and Vacuum Chamber Redesign

Students: Camille Gipson, Corbin Narita
Advisor: William McCarthy

27. Automatic Book Page Turner

Students: Colleen Buckley, Patrick O'Brien, Tyler Bobbin, Matthew Biando, Chris Sakellariadis
Advisor: Eben Cobb

28. NHRL Battlebot

Students: Aiden Deady, Carlos Jones, Maksymilian Robidoux, Quinn Connor, Virginia Shea
Advisor: Mehul Bhatia

29. High Energy Density Mg-Air Battery for Shipping

Students: Peter Poulos, Grady Howell, Konstantinos Sarantopoulos
Advisor: Adam Powell

30. Steady Sip Drinking Aid

Students: Cece Daniele, Melanie Dostie, Ethan Gomes, Jillian Maguire, Sean Maguire
Advisor: Sarah Jane Wodin-Schwartz

31. The Design and Fabrication of Novel Guitar Frets and Fretboards for Manufacturability and Wear Resistance

Students: Leagsaidh Collis, Mia Katz, Andrew Klegraefe, Carter Melanson
Advisors: Fiona Zoutendyk, V. J. Manzo

32. The Design and Prototyping of a Low-Cost & Efficient Ocean Cleanup Robot

Students: Yan Acevado, Samantha Booher, Evan Carmody, John Hall, Renata Kaplan, Joshua Keselman, Cooper Mann
Advisors: Vincent Aloï, Selcuk Guceri

34. 3D Printing-Based Silicone Earmold Fabrication for Pediatric Hearing Aids

Students: Spencer Doran, Marshall Wo, Abigail Silva
Advisor: Yihao Zheng

35. Desktop CNC Milling: Open-Source Innovations for Cost-Effective Manufacturing

Students: Echo Baumer, Rafael Caballero, James Carroll, Camren Chaplak, Michael Doucette, Perrin Kristoff, Andrew Petro, Daniel Petro, Michael Primavera, JR Thaiprayoon, Dante Uccello
Advisors: Pradeep Radhakrishnan, Snehalata Kadam, Joshua Cuneo

36. Development of a Self-Contained Compliant Tongue Prosthesis with Miniaturized Electronics for Oral Cancer Patients

Students: Daniel Bottrill, Andrea Malaver, Tanisha Mitra, Troy DiStaso
Advisors: Pradeep Radhakrishnan, Dirk Albrecht

37. Electric Ridable Vehicle

Students: Benjamin Guilbault, Alex Lin, Abbie Wang, Jonathan Blecherman
Advisors: Reza Ebadi, Joe Stabile

38. A Resistance Based Colonoscopy Probe for Real-time Polyp Analysis

Students: Jamie Baines, Kyla Fu, Jessica Vo, Laurel Whitley
Advisors: Ahmet Sabuncu, Sakthikumar Ambady

39. Adapted Snow Boot for AFO Users

Students: Kristina MacLeod, Sarah McCarthy, Julia Karman, Brianna Levasseur
Advisors: Karen Troy, Sarah Jane Wodin-Schwartz
Sponsors: Erika Baum and Nicky Nyeh

40. Small Scale Energy Storage

Students: Tara Checko, John Michienzi, Emma Carroll
Advisor: Fiona Zoutendyk

41. UGV Redesign for Off-Road Mobility

Students: Nico Alvarado, Nicholas Healy, Lorenzo Hess, Alexandra Joseph
Advisors: Vladimir Vantsevich, Lee Moradi, Hunter Zhang

42. Design and Fabrication of an Apparatus to Evaluate the Dynamic Loading Response of Aerospace Materials

Students: Ben Furman, Federico Lenson, Jacob Saunders, Karl Schletzbaum
Advisors: Diana Lados, Anthony Spangenberg

43. Electrical and Mechanical Redesign of a Humanoid Robot to Assist Locomotion

Students: Matthew Amoda, Parker Hunt, William Pagliarulo, Ligia Portugal, Jared Revell, Greg Reppucci, Donavan Segelhorst
Advisors: Pradeep Radhakrishnan, Taylor Andrews

44. Design and Optimization of Novel Impact-Resistant Composites with Structural and Functional Properties for Transportation and Defense Applications

Students: William Brownell, Elizabeth Goncalves, Isabella Ibrahim, Pedro Salomao
Advisors: Diana Lados, Anthony Spangenberg

45. PEM Fuel Cell Flow Field Optimization

Students: Caitlyn Harrington, Adam Flores, Maximo Anderson, Nicholas Richardson, Marshall Ismail
Advisor: Mehdi Mortazavi
Sponsor: Honeywell Aerospace

46. Developing Thermal Energy Storage for Energy Efficiency

Students: Matthew Lydon, Rebekah Shields
Advisors: Mehdi Mortazavi, Burt Tilley

47. Advanced Design of an Apparatus for Impact Testing and Evaluation of Novel Energy-Absorbing Composites for Transportation and Defense Applications

Students: Ethan Edmondson, Jonah Potter, Ryan Siepmann, Nicolas LeSieur
Advisors: Diana Lados, Anthony Spangenberg

48. Analysis, Design, and Application of Improved HighSpeed Mechanisms for Middle-Ear Characterization Under High-Acoustical Loads

Students: Luke Thomas, Donovan Joyce, Sean Welch
Advisors: Cosme Furlong-Vazquez, Dirk Albrecht
Sponsor: Massachusetts Eye & Ear, Boston MA

49. Development of an Improved Modular System, Swapping Station, and Autonomous Cart for EndEffectors in a 3D-Printed Humanoid Robot

Students: Theodore Zisseron, Joseph Nixon, Christopher Levin, Hunter Crossman, Jack Aylesworth
Advisors: Pradeep Radhakrishnan, Taylor Andrews

50. Engineering of a Modern Storage Bed with Integrated Electrical

Student: Connor Lepore
Advisor: Sarah Jane Wodin-Schwartz

51. Design and Fabrication of a Small-Scale Rotating Cylinder Valve Engine

Students: Stella Burfeind, Thomas Casey, Mason Connell, Brooke Peloquin, David Szymanczyk, Jarrett Tousignant
Advisors: Selcuk Gucer, Germano Iannacchione

52. Manufacturing a Model 1867 Otto-Langen Atmospheric Gas Engine

Student: Colin Lysaght

Advisor: Robert Daniello

53. Development of Elbow Exoskeleton with Printed Stretchable Electronics and Sensors

Students: Connor Ehrensperger, Ethan Lilley, Panayotis (Perry) Pesiridis

Advisors: Pratap Rao, Lane Harrison