Engineering Design Showcase
senior capstone and first-year cornerstone projects

Friday, April 18, 2014
Welcome to the Annual Engineering Education Innovation Center (EEIC) Engineering Design Showcase!

Thank you for joining us at the EEIC Engineering Design Showcase sponsored by the Engineering Education Innovation Center and ArcelorMittal. The showcase is a platform for undergraduate students to display their capstone or first-year cornerstone projects and to answer questions about their research, design methods and project experience.

7th Annual Engineering Capstone Design Showcase: Senior engineering students spend one to two academic semesters on their capstone projects which culminate their undergraduate academic experience at The Ohio State University. The more than 170 capstone projects displayed are individual, multidisciplinary or industry-sponsored projects. Students will be present to answer questions about their research, design methods and capstone experience.

11th Annual FEH Research Showcase: First-Year Engineering Honors Nanotech projects will also be on display during the showcase. Twenty first-year engineering student teams were challenged to design and fabricate a silicone polymer microfluidics lab-on-a-chip to analyze surface feature effects on cell adhesion. Teams will present their research findings.

This year we are privileged to have Dr. DeVon Griffin as our keynote speaker, presenting Medical Hardware Design for Space Exploration. Dr. Griffin earned a BA in physics from Utah State University and a PhD in optical sciences from the University of Arizona. After graduation he accepted a position at the NASA Glenn Research Center (GRC), where he conducted the first experiments and analysis quantifying the fractal number of soot generated in microgravity. Since 2004, Dr. Griffin has been a project manager supporting NASA’s Human Research Program. He initiated an effort developing a reusable lab-on-a-chip device that should become a commercial device this summer. He also began development of a broad band ultrasound detector to quantify bone mineral density in the lumbar spine. Dr. Griffin currently manages computational groups that develop deterministic models of key physiological changes due to microgravity, and quantifies risk associated with human exploration. He has managed the GRC capstone effort since its inception.

We hope you enjoy learning more about our students and their academic research. Please enjoy the showcase!
Agenda

11:00 a.m.  Keynote Speaker
Dr. DeVon Griffin, *NASA Glenn Research Center*
Ohio Union, U.S. Bank Conference Theater

12:00 p.m.  Design Showcase Opens
Ohio Union, Archie Griffin Grand Ballroom

3:00 p.m.   Welcome and Introduction
Bob Rhoads, *Capstone Design Program Coordinator*

3:05 p.m.   Presentation to Showcase Sponsors:
ArcelorMittal

3:10 p.m.   Remarks
David B. Williams,
*Monte Ahuja Endowed Dean’s Chair*
*Executive Dean of the Professional Colleges &
Dean of the College of Engineering*

3:20 p.m.   Showcase Project Winners Presentations

3:30 p.m.   Closing Remarks
Bob Rhoads, *Capstone Design Program Coordinator*
7th Annual Engineering Capstone Design Showcase
# Student Major Key

<table>
<thead>
<tr>
<th>Major Code</th>
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<td>Physical Therapist</td>
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<td>WE</td>
<td>Welding Engineering</td>
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Aviation

1  Due North Aviation Project
Students: Brandon A’hara, Avia; Robert Barnes, Avia; Matthew Ede, Avia; Aaron Kersjes, Avia; Kevin Peddicord, Avia; Jeffrey Cheiky, Avia
Faculty Advisor(s): Brian Strzemkowski
Industry Sponsor: Due North Aviation
Industry Contact(s): Nathan Kayes, David Pytlik

2  Value Measurement of Corporate Shuttle
Students: Sarah Ferris, Avia; Josh Fisher, Avia; Jackson Gallo, Avia; Courtney Kreis, Avia; Zachery Rooker, Avia; Julie Vanden Bulke, Avia
Faculty Advisor(s): Jim Oppermann
Industry Sponsor: ConocoPhillips
Industry Contact(s): Stan Phipps
Biomedical Engineering

3  Artificial Arm for Imaging and Needle Placement
   Students:  Connor Pyles, BME; Laura Caggiano, BME; Laura Henkel, ME; Emily Swingle, BME; Michael Whipple, BME
   Faculty Advisor(s):  Mark Ruegsegger
   Industry Sponsor:  The Ohio State University, Clinical Skills Education and Assessment Center
   Industry Contact(s):  Jeffery Adams

4  Center of Gravity
   Students:  Brian Eng, BME; Kurt Gildenmeister, ME; Nicholas Holzman, BME; Christian Weber, ME
   Faculty Advisor(s):  Mark Ruegsegger, Sandra Metzler, Carmen DiGiovine
   Industry Sponsor:  The Ohio State University
   Industry Contact(s):  N/A

5  Device to Detect Footstrike Pattern and Provide Instantaneous Feedback
   Students:  John Bartholomew, ME; Michelle Cullen, ME; Michael Guthrie, BME; Eli Brantingham, BME; Matthew Keller, BME; Sarah Levine, PT
   Faculty Advisor(s):  Sandra Metzler, Carmen DiGiovine
   Industry Sponsor:  The Ohio State University
   Industry Contact(s):  Kelly Mueller, Rick Neitzelt

6  Extendable Patient Lift
   Students:  Michael Baxter, BME; Rachel Bullock, BME; Marissa Gill, ME; Alex Scott, BME; Qiang Zhai, ME
   Faculty Advisor(s):  Sandra Metzler, Jane Case-Smith, Mark Ruegsegger
   Industry Sponsor:  The Ohio State University
   Industry Contact(s):  N/A
7 **EZGAS AccuPuncture- Novel Arterial Blood Gas Sampling Device**
Students: Alex Autran, BME; Rebecca Bennett, BME; Erin Kosel, BME; Kedryn Marquart, BME
Faculty Advisor(s): Mark Ruegsegger
Industry Sponsor: The Ohio State University
Industry Contact(s): Jim Bott

8 **Frequency Tuner**
Students: Esper Wadih, BME; Josh Brockman, BME; Ryan Reyes, BME; Dan Dressler, BME; Derek Schroeder, ME
Faculty Advisor(s): Mark Ruegsegger, David Lee
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

9 **Hemiwalker**
Students: Chloe Coutts, ME; Tony Harlamert, ME; Jared Bobulski, BME; Elliott Dirr, BME; Yue Liu, ME; Lauren Kolecki, OT
Faculty Advisor(s): Mark Ruegsegger, Jane Case-Smith
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

10 **Kidology Rehabilitation Game**
Students: Chelsea Bennett, BME; Jackie Stuber, BME; Jacob Larkin, ME; Disha Labhasetwar, ME; Dane Owens, ME
Faculty Advisor(s): Mark Ruegsegger, Jill Heathcock
Industry Sponsor: The Ohio State University
Industry Contact(s): Nicole Gross

11 **MRI Cardiac Phantom**
Students: Patrick England, BME; Michael Geletka, BME; Dennis Lee, BME; Sam Shomper, ME
Faculty Advisor(s): Mark Ruegsegger
Industry Sponsor: The Ohio State University
Industry Contact(s): Arunark Kolipaka
12 NASA Advanced Exercise Harness
Students: Sean Pisano, BME; Michael Wolfe, BME; Matthew Rudy, BME; Elizabeth Maione, BME; Cecylia Daab-Krzykowski, BME; Elizabeth Good, OT
Faculty Advisor(s): Mark Ruegsegger
Industry Sponsor: NASA
Industry Contact(s): Aaron Weaver

13 OncoFilter
Students: Bridget Crawford, BME; David Sohutskay, BME; Kinshuk Mitra, BME
Faculty Advisor(s): Mark Ruegsegger, Michael Tweedle
Industry Sponsor: The Ohio State University, NCIIA, Wright Center for Molecular Imaging
Industry Contact(s): Michael Tweedle

14 Power Soccer Guards
Students: Timothy Sanchez, BME; Samantha Lewis, BME; Cody Smucker, ME; Eric Dennis, ME; Jay Young, BME; Margaret Gauntner, OT
Faculty Advisor(s): David Lee, Theresa Berner
Industry Sponsor: The Ohio State University
Industry Contact(s): Luke Edelbrock

15 SMART Material with Pressure Sensor Application
Students: Molly Mollica, BME; Matthew Lynch, BME; Benjamin Siderits, BME; Kaitlin DeRussy, BME; Bradley Norval, ME
Faculty Advisor(s): Sandra Metzler, Carmen DiGiovine
Industry Sponsor: The Ohio State University
Industry Contact(s): Halle Stolarsky

16 Super Spines
Students: Jessica Crofford, OT; Anne Marie Jackson, BME; Anja Brkljacic, BME; Maneesha Sivalingam, BME; Brad Smith, ME; Mike Hehl, ME
Faculty Advisor(s): David Lee, Theresa Berner
Industry Sponsor: The Ohio State University
Industry Contact(s): Heather Schriver
17 The Adaptive Rower
Students: Lauren Bruss, BME; Allyson Campbell, ME; Nicholas Domicone, BME; Clay McRoberts, BME; Sam Tucker, ME; Arin Waechter, OT
Faculty Advisor(s): Sandra Metzler, Theresa Berner
Industry Sponsor: The Ohio State University, The Adaptive Action Sports Coalition, Greater Columbus Rowing Association
Industry Contact(s): Arin Waechter, Helmut Berthold, Jody Stahr

18 The O.S.T.R.I.C.H. Upper Extremity Weight Bearing Device
Students: Paige Lysaght, ME; Ethan Lange, ME; Jacqueline Bono, BME; Trey Divelbiss, BME; John Collins, BME
Faculty Advisor(s): David Lee, Alexandra Borstad
Industry Sponsor: The Ohio State University
Industry Contact(s): Heather Schriver

19 The Oxygen Supplement Unit
Students: Lena Sayfee, BME; Yeonsu Ryu, BME; Ben Weekes, BME; Amy Cinadr, ME; Jordan Mendenhall, ME
Faculty Advisor(s): Mark Ruegsegger
Industry Sponsor: NASA
Industry Contact(s): Sandra Olsen

20 Wheelchair to Kayak Transfer Device
Students: Jared Yeggy, BME; Vincent Auyeung, BME; Collin Pittro, ME; Christopher Richardson, ME
Faculty Advisor(s): Mark Ruegsegger, Carmen Digiovine, Sandra Metzler, David Lee
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

21 Without a Paddle
Students: Ashley Chiu, BME; Kyle Bodynk, BME; Greg Huffman, ME; Ryan Donnelly, BME; Eisman Morales, BME
Faculty Advisor(s): Sandra Metzler, Mark Ruegsegger, Theresa Berner
Industry Sponsor: The Ohio State University
Industry Contact(s): Joan Arnold
Chemical & Biomolecular Engineering

22 Antibody Conjugation to Fluorescent/Magnetic Nanoparticles for Pathological Imaging
Students: Robert Kirian, CBE; John Logue, CBE; Kevin McNulty, CBE; Brian Mog, CBE
Faculty Advisor(s): David Tomasko, Jeevan Baretto, Clayton Deighan
Industry Sponsor: Core Quantum Technologies
Industry Contact(s): Kristie Melnik, Jessica Winter

23 Bio-Fuel Options for Fuel Cells
Students: Yuanpeng Ding, CBE; Patrick Halley, CBE; Radhika Madhavan, CBE; Paramee Vanavijitr, CBE; Robert Warburton, CBE
Faculty Advisor(s): David Tomasko
Industry Sponsor: pH Matter, LLC
Industry Contact(s): Paul Matter, Michael Beachy

24 Characterization of the Extensional Flow Properties of Shampoos; Extensional Rheology and its Influence on Industrial Filling
Students: Kevin Asper, CBE; Lily Glick, CBE; William Murray, CBE; Mark Villarreal, CBE
Faculty Advisor(s): David Tomasko
Industry Sponsor: Procter & Gamble
Industry Contact(s): Fei Wang

25 High-Efficiency Heat Transfer Coating for Catalytic Supports
Students: Olivia Wetta, CBE; Stefan Heglas, CBE; Leland Chandler, CBE; Paige Basinger, CBE
Faculty Advisor(s): David Tomasko
Industry Sponsor: NexTech Materials
Industry Contact(s): Matt Seabaugh, Neil Kidner
26  **Light Responsive Smart Fluids for Drag Reduction Application in District Heating and Cooling System**  
Students: Jessica Kam, CBE; Jay Cheng, CBE; Xin Phuah, CBE; Christina Anderson, CBE; Kevin Muenks, CBE  
Faculty Advisor(s): Andy Maxson  
Industry Sponsor: Dr. Jacques Zakin  
Industry Contact(s): Dr. Jacques Zakin

27  **Micellar Particles via Flash Precipitation**  
Students: Eric Piening, CBE; Jasmyne Walker, CBE; Zac Coates, CBE; Esther Mutua, CBE  
Faculty Advisor(s): Barbara Wyslouzil  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Barbara Wyslouzil

28  **Optimized Cell Labeling with Fluorescent Magnetic Nanoparticles**  
Students: Joseph Ionni, CBE; Matthew Cox, CBE; Casey Flaherty, CBE; Austin Hounshell, CBE  
Faculty Advisor(s): Jessica Winter, Qirui Fan  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Jessica Winter, Qirui Fan

29  **Utica Shale Gas**  
*Best in Capstone Design*  
Students: Yazen Al-Harazy, CBE; Jason Ezzell, CBE; Matthew Rowley, CBE; Maxwell Roy, CBE  
Faculty Advisor(s): David Tomasko  
Industry Sponsor: The Ohio State University  
Industry Contact(s): David Tomasko
Integrated & Systems Engineering

30  **Advance Auto Parts Shipping Dock**
Students:  David Wickenheiser, ISE; Andrew Brant, ISE; Nicole Fink, ISE; Veronica Irizarry, ISE
Faculty Advisor(s):  Steve Lavender
Industry Sponsor:  Advance Auto Parts
Industry Contact(s):  Jenny Long, Norman Halverson

31  **An Ergonomic Analysis of Advance Auto Parts Brake Rotor Picking Process**
Students:  Kathleen McManus, ISE; Hendry Tjawinoto, ISE; Jeff Davis, ISE
Faculty Advisor(s):  Steve Lavender
Industry Sponsor:  Advance Auto Parts
Industry Contact(s):  Norman Halverson, Jenny Long, Justin Leeson

32  **Assessing Ergonomics at Emerson Thermodisc**
Students:  Nwachukwu Ezumah, ISE; Jonathan Peshek, ISE; David Holcomb, ISE
Faculty Advisor(s):  Steve Lavender
Industry Sponsor:  Emerson Thermodisc
Industry Contact(s):  Bob Schroer

33  **Cleaning Up Injuries: The Development of an Ergonomic Lifting Apparatus for Recycled Linen at the OSU Medical Center**
Students:  Katherine Calvert, ISE; Laura Gurnowski, ISE; Michael Myers, ISE
Faculty Advisor(s):  Steve Lavender
Industry Sponsor:  The Ohio State University Wexner Medical Center
Industry Contact(s):  Rick Mulvaine
34 Columbus Zoo Educational Program Overtime Cost Reduction Through Schedule Optimization
Students: Robyn Verhoff, ISE; Chaohong Hu, ISE; Jordan Fashner, ISE; Timothy Braden, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Columbus Zoo, The Ohio State University
Industry Contact(s): Carman Wirtz

35 DB Schenker Claims Reduction Effort: Decreasing Customer Claims on Order Shortages and Overages Through Implementation of Revised Standard Operating Procedures
Students: Jonathan David, ISE; Kari Deters, ISE; Ryan Lachey, ISE; Rachel Reese, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: DB Schenker
Industry Contact(s): Donald Wharton

36 Developing a Layout Solution for the Final Assembly Process at Hendrickson
Students: Shannon Casey, ISE; Charles Gordon, ISE; David Rubio, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Hendrickson
Industry Contact(s): Sam White

37 Development of Standardized Testing High Pressure Die Casting Lubricants
Students: Daisy Gill, ISE; Nicholas Metsch, ISE; Alyssa Biggs, ISE
Faculty Advisor(s): Steve Lavender, Jerald Brevick
Industry Sponsor: Honda Manufacturing of Alabama
Industry Contact(s): Rob DeNeff, Richard Garnett

38 Honda-Reducing CVT Pulley Grinding Oil Waste by Improving Swarf Extraction Process
Students: Anthony Allen, ISE; Alexander Betz, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Honda
Industry Contact(s): Jim McDermott
39 **Identifying Ergonomic Solutions for the Hendrickson Knuckle Assembly**
Students: Eric Rhodes, ISE; Cortney Linard, ISE; Matthew Ames, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Hendrickson, The Ohio State University
Industry Contact(s): Sam White

40 **Jeni’s Warehouse Design to Increase Efficiency**
Students: Kaitlynn Kirchner, ISE; Leah Werner, ISE; Steven Imholt, ISE; Muhammad Basri, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Jeni’s Splendid Ice Creams
Industry Contact(s): Stephanie McBride

41 **Maintaining Part Specifications While Reducing Baking Time and Energy**
Students: William Voellmecke, ISE; Matthew Larsen, ISE; Fatima Kebe, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Therm-O-Disc
Industry Contact(s): Robert Drane

42 **Recommendations for Improving the Efficiency and Layout of Rod’s Western Palace’s Distribution Center**
Students: Iko Bako, ISE; Ariel Bouie, ISE; Adam Kahan, ISE; Briana Schultz, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Rod’s Western Palace
Industry Contact(s): Dave Fleming

43 **Reducing Injuries by Improving the Hand Pinting Procedure at Jeni’s Splendid Ice Creams**
Students: Adrienne Capotosta, ISE; Crai Hodges, ISE; Renee Leffler, ISE; Ben Korte, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Jeni’s Splendid Ice Creams
Industry Contact(s): Stephanie McBride
44 Reducing Overtime Costs by Optimizing Labor Distribution and Scheduling in the North America Exhibit
Students: Stav Bendor, ISE; David Winterstein, ISE; Yvette Gambrel, ISE; William Morrison, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Columbus Zoo
Industry Contact(s): Carrie Pratt

45 Turnover Time Reduction and Process Standardization for OSU East Hospital Operating Rooms
Students: Kristen Kunkel, ISE; Jordan Wiesner, ISE; Cindy Luu, ISE; Lindsey Kathmann, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: The Ohio East Hospital
Industry Contact(s): Thomas Ellis

46 Using Value Stream Mapping to Determine Areas of Process Improvement for Whirlpool Dryer Production
Students: Jena Kerner, ISE; Mike Parrella, ISE; Jialong Wu, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: Whirlpool
Industry Contact(s): Brian Beavers

47 Warehouse Picking Efficiency Analysis at DB Schenker
Students: Kathryn Bucher, ISE; Daniel Hoffman, ISE; Madison Platt, ISE; Guangsi Zhang, ISE
Faculty Advisor(s): Steve Lavender
Industry Sponsor: DB Schenker
Industry Contact(s): Bob Lever
Integrated & Systems Engineering (6-Sigma)

48 Central Sterile Supply Quality Assurance
Students: Vignesh Gundesha, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Armin Rahmanian, Laura Phieffer, Valery Tarver, Tim Nelson

49 Decrease Turnaround Time for Portable Surface Echos
Students: Erica Loughry, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Valery Tarver, Julie Comyns

50 Donatos Forecast Accuracy Improvement
Students: Trevor Simes, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Donatos Pizzeria LLC
Industry Contact(s): Travis Howard

51 Improvement of Flow and Reduction of Lead Time for Autumn Move-in Day
Students: Ana Becera, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: The Ohio State University
Industry Contact(s): Daren Lehman, Aubrie Smith

52 Improving Communication & Alignment in the Client Referral Process
Students: Jessica Sumner, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: National Church Residences
Industry Contact(s): Erica Drewry
53 **Improving the Integrity of the Resistance Measurement System for Production Line 2**  
Students: Michael Newbern, ISE  
Faculty Advisor(s): Scott Sink  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Phil Vickers

54 **Increasing the Throughput of Completed Policies by Decreasing the Percentage of Incoming Misdirected Phone Calls**  
Students: Nathan Rohyans, ISE  
Faculty Advisor(s): Scott Sink  
Industry Sponsor: Grange Insurance  
Industry Contact(s): Amy Tomaszweski, Phil Blower, Dan Guveiyian, Nikki Welch, Denise Muren

55 **Internal Component Supply Manufacturing 50% L/T Reduction**  
Students: Nicolas Fujimura, ISE  
Faculty Advisor(s): Scott Sink  
Industry Sponsor: Diamond Innovations  
Industry Contact(s): Amanda Bowermaster, Samuel Anthony

56 **Internal Supply Chain Error Proofing - Decreasing the RPN Score**  
Students: Nicholas Stagge, ISE; Joshua Niewiadomshi, ISE  
Faculty Advisor(s): Scott Sink  
Industry Sponsor: Sutphen Corporation  
Industry Contact(s): Jon Corsetti, Jeff Bonn

57 **Internal Supply Chain Restructuring and Central Warehouse Design Project**  
Students: Jared Walter, ISE  
Faculty Advisor(s): Scott Sink  
Industry Sponsor: Sutphen Corporation  
Industry Contact(s): Drew Sutphen, Mike Ulicne, Jeff Bonn, Jon Corsetti
58  Janitorial Closet Inventory Program Cost Reduction
Students: Matthew Witzman, ISE; Christopher Burton, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: The Ohio State University Purchasing, Receiving, Stores, and Mail (PRSM)
Industry Contact(s): Shawn Jones

59  Lead Time Optimization: Reaching the Apex of Distribution
Students: Joseph Jeswald, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Royal Building Products
Industry Contact(s): Shannon Stehman

60  Lead Time Reduction Project
Students: Jehan DeVitre, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: The Ohio State University Purchasing, Receiving, Stores, and Mail (PRSM)
Industry Contact(s): Mandi Stowers, Nathan Andridge, Michelle Tiburzi

61  Non-Value Added Time in the Pick, Pack and Ship Operations at METTLER-TOLEDO
Students: Eleanor Cooper, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: METTLER-TOLEDO
Industry Contact(s): Stephanie Viehman

62  Script Lead Time and Defect Reduction Project
Students: Andrew Wharton, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Ohio Health
Industry Contact(s): Dave Partridge, Karina Magaziner-Rubin

Best in Capstone Design
63 Test Flow Request Lead Time Reduction
Students: Scott Zelle, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Nationwide Insurance
Industry Contact(s): Stephanie McIntyre, April Verchot

64 Tint Stock Quality Management System Project
Students: George Shapiro, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Akzo Nobel
Industry Contact(s): Mike Froman, Gavin Miller

65 Transportation System Optimization
Students: Benjamin Demers, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: National Church Residences
Industry Contact(s): N/A

66 Worthington Industries Scrap Reduction Project
Students: Ethan Ragouzis, ISE
Faculty Advisor(s): Scott Sink
Industry Sponsor: Worthington Industries
Industry Contact(s): Brad Kern
Materials Science & Engineering

67  A Study of Deformation Behavior of Metallic Multilayer Composites during Nanoindentation
Students:  Dadi Zhang, MSE
Faculty Advisor(s):  Peter Anderson
Industry Sponsor:  The Ohio State University
Industry Contact(s):  N/A

68  Analysis of Polycaprolactone Bilayer Scaffolds for use in Tendon/Ligament Repair
Students:  Adam Opryszko, MSE; Joe Benedetto, MSE; Evin Hatch, MSE
Faculty Advisor(s):  Heather Powell
Industry Sponsor:  The Ohio State University, National Institutes of Health, University of Cincinnati Medical
Industry Contact(s):  Heather Powell

69  Characterization of the HEA TiFeCrNiX
Students:  W. Connor Moorman, MSE
Faculty Advisor(s):  Brian Welk, Fraser Hamish
Industry Sponsor:  The Ohio State University
Industry Contact(s):  N/A

70  Design & Finite Element Analysis of a Cryocooled MgB2 Superconducting Ring Magnet for MRI
Students:  Rob Grote, MSE; Michael Tita, MSE
Faculty Advisor(s):  Michael Sumption
Industry Sponsor:  The Ohio State University
Industry Contact(s):  N/A

71  Directed Deposition of Sacrificial Fibers Effect on Shrinkage
Students:  Colin Bevis, MSE; Clare Oticsek, MSE; David Weber, MSE
Faculty Advisor(s):  John Lannutti
Industry Sponsor:  The Ohio State University
Industry Contact(s):  N/A
72 Gas-Sensing Properties of Nano-Structured Metal Oxide Heterojunctions
Students: Marc Doran, MSE; Robert Brese, MSE
Faculty Advisor(s): Patricia Morris, Sheikh Akbar
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

73 Graded Chemistry Click on Aligned Nanofibers
Students: Chelsea Wells, MSE; Jen Keller, MSE; Chen Ge, MSE
Faculty Advisor(s): John Lannutti
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

74 Growth of Nano-Structures on Metal Substrates via Metal Powder Suspension
Students: Stuart Lambert, MSE; Lyndsey Hanzlik, MSE
Faculty Advisor(s): Suliman Dregia, Sheikh Akbar, Enam Chowdhury
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

75 High Temperature Steel Development for the Ultrasupercritical Steam Turbines
Students: Janelle Becker, MSE; John Rhoades, MSE; Janelle Middleton, MSE
Faculty Advisor(s): Ji-Cheng Zhao
Industry Sponsor: U.S. Department of Energy
Industry Contact(s): N/A

76 Honeycomb Composites for Improved Automobile Crashworthiness
Students: Kit James, MSE; You Li, MSE; Connor Slone, MSE
Faculty Advisor(s): Peter Anderson
Industry Sponsor: Honda R & D
Industry Contact(s): Allen Sheldon
77 Hydrogel Based Stem Cells for Heart Muscle Regeneration
Students: Eduardo Calzadilla-Kolodziej, MSE; Wilson Lo, MSE
Faculty Advisor(s): Jianjun Guan
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

78 InGaN Nanowire Photocatalytic Electrolysis for Hydrogen Mass Production
Students: John Lok, MSE; Sarwar Golam, MSE
Faculty Advisor(s): Roberto Myers
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

79 Investigation in Vaporizing Foil Actuator Welding of Dissimilar Metals
Students: Jake Benzing, MSE; Mei He, MSE
Faculty Advisor(s): Anupam Vivek, Glenn Daehn, Mike Mills
Industry Sponsor: The Ohio State University, CEMAS, Honda, ALCOA
Industry Contact(s): N/A

80 Modeling and Structure of 5T Superconducting Racetrack Magnet
Students: Ryan Sink, MSE; Bryan Buckosh, MSE; Tyler Sahlin, MSE
Faculty Advisor(s): Michael Sumption, Milan Majoros
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

81 Persistent Superconducting Joint of MgB2 Wire
Students: John Schultz, MSE
Faculty Advisor(s): Michael Sumption
Industry Sponsor: Hyper Tech
Industry Contact(s): N/A
82 PINLED Gas Sensor
Students: Ethan Courtad, MSE; Walter Riker, MSE
Faculty Advisor(s): Roberto Myers
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

83 Predicting Metastatic Potential In Vitro for Personalized Cancer Treatment
Students: Megan Malara, MSE; Jackson Thomas, MSE; Qiuwan Wang, MSE
Faculty Advisor(s): Heather Powell
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

84 Sensor Enhanced and Model Validated Life Extension of Batteries for Energy Storage
Students: Sanghyun Suh, MSE
Faculty Advisor(s): Gerald Frankel
Industry Sponsor: DNV-GL
Industry Contact(s): Davion Hill, Arun Argarwal
Mechanical Engineering

85 Analysis of Dayton Superior’s C49 Bridge Overhang Bracket
Students: Katherine Waidelich, ME; Jacob Hempfling, ME; Stephanie Kuruc, ME
Faculty Advisor(s): Anthony Luscher
Industry Sponsor: Dayton Superior
Industry Contact(s): Hunter Everett

86 Analysis of Front Disc Brake Dynamics using Modern Simulation Tools and Experimental Methods
Students: John Beischel, ME; John Boone, ME; Drew Vince, ME; Yangyang Shao, ME; Peiyu Yang, ME
Faculty Advisor(s): Jason Dreyer, Rajendra Singh
Industry Sponsor: GM Foundation
Industry Contact(s): Steven Shi

87 Analysis of Rear Disc Brake Dynamics using Modern Simulation Tools and Experimental Methods
Students: Mohd Atala, ME; Michael Kurth, ME; Kevin Lehoe, ME; Chi Zhang, ME
Faculty Advisor(s): Jason Dreyer, Rajendra Singh
Industry Sponsor: GM Foundation
Industry Contact(s): Steven Shi

88 Analysis of Steering Wheel Dynamics and Vibration Using Modern Simulation and Experimental Methods
Students: Scott Koch, ME; Andy Gomez, ME; Will Estep, ME; Patrick Bruns, ME
Faculty Advisor(s): Scott Noll, Rajendra Singh
Industry Sponsor: GM Foundation
Industry Contact(s): Rene Kreis
Multi-Node, Open System Sensor Array for Building Energy Conditioning
Students: Nathan Alexander, ME; Collin Greywitt, ME; Justin Kamlowsky, ME; Andrew Hile, ME; Cassandra Carr, ME
Faculty Advisor(s): Mark Walter, James Rowland, Matt O’Kelly
Industry Sponsor: Max Tech and Beyond Competition (Berkeley National Laboratory and US Department of Energy)
Industry Contact(s): Stacy Pratt

Novel Device to Characterize the Dynamic Properties of a Ball Bearing: Application to Steering Wheel “Shake” Phenomenon
Students: Nathan Cho, ME; Richard Eckenrode, ME; Kyle Hann, ME; Brent Koch, ME; Bowen Wang, ME
Faculty Advisor(s): Scott Noll, Rajendra Singh
Industry Sponsor: GM Foundation
Industry Contact(s): Rene Kreis
Mechanical Engineering (Product Design)

91  Auto-Extend & Retract Wheel  
   Students:  William Hoover, ME; Dina Tayim, ME; Anahita Ameri, ME  
   Faculty Advisor(s):  Blaine Lilly  
   Industry Sponsor:  The Ohio State University  
   Industry Contact(s):  N/A

92  Electric Bike Conversion Kit  
   Students:  Matthew Hawk, ISE; Aleksander Lapshin, ISE; Rao Abhishek, ME; Collin Davis, ME  
   Faculty Advisor(s):  Blaine Lilly, Steve Lavender  
   Industry Sponsor:  The Ohio State University  
   Industry Contact(s):  N/A

93  Foam Filled Car Door Feasibility Study  
   Students:  Brian Horn, ME; Zach Lutmer, ME; Derik Burkholder, ME; Luke Cardinale, ME  
   Faculty Advisor(s):  Blaine Lilly  
   Industry Sponsor:  Honda  
   Industry Contact(s):  N/A

94  INTAC BReaching Practice Equipment  
   Students:  Jim Kaser, ME; Hank Van Der Laar, ME; Nicole Pascucci, ME  
   Faculty Advisor(s):  Blaine Lilly  
   Industry Sponsor:  The Ohio State University  
   Industry Contact(s):  N/A

95  MC - Music Controller  
   Students:  Andy Huffman, ME; Nate Seamans, ME; Mingle Tong, ME; Michelle Yung, ME  
   Faculty Advisor(s):  Blaine Lilly  
   Industry Sponsor:  The Ohio State University  
   Industry Contact(s):  N/A
96  **Non-invasive Glucometer**  
Students: Ricki Cohen, ME; Aaron Jansson, ME; Nathan Lieberman, ME; Jordan Nader, ME  
Faculty Advisor(s): Blaine Lilly  
Industry Sponsor: The Ohio State University  
Industry Contact(s): N/A

97  **Portable Beehive Scale**  
Best in Capstone Design  
Students: Kyle Culek, ME; Benjamin Musci, ME; Joseph Ryan, ME; Peter Worley, ME  
Faculty Advisor(s): Blaine Lilly  
Industry Sponsor: The Ohio State University  
Industry Contact(s): N/A

98  **Sherwin-Williams Design Project**  
Students: Brian Riley, ME; Andrew Stanton, ME; Josh Shook, ME; Anthony Feller, ME  
Faculty Advisor(s): Blaine Lilly  
Industry Sponsor: Sherwin-Williams  
Industry Contact(s): Chuck Kletrovets

99  **Special Forces Rucksack Design**  
Students: Samuel Almeida, ME; Abhishek Kakkar, ME; Audrey Parent, ME; Patrick Roman, ME  
Faculty Advisor(s): Blaine Lilly  
Industry Sponsor: The Ohio State University  
Industry Contact(s): N/A

100  **Spraymaster**  
Students: Colin King, ME; Joshua Zeigler, ME  
Faculty Advisor(s): Blaine Lilly  
Industry Sponsor: The Ohio State University  
Industry Contact(s): N/A
101  **The Design of Fishing Made Safer**  
Students:  Kara Kenzora, ME; Adam Meyer, ME; Jared Neidhard, ME; Aaron Szabo, ME  
Faculty Advisor(s):  Blaine Lilly  
Industry Sponsor:  The Ohio State University  
Industry Contact(s):  N/A

102  **Whirlpool Alpha Dryer Door Hinge Reversibility Study**  
Students:  Matthew Bogue, ME; Robert Demarchi, ME; Gerold Haumschild, ME; Christopher Paluf, ME; Chase Violetta, ME  
Faculty Advisor(s):  Blaine Lilly  
Industry Sponsor:  The Whirlpool Corporation  
Industry Contact(s):  Ronald Patrick, Chris Craycraft
Motorsports Capstone Projects

103  Baja SAE Data Acquisition Capstone
Students: Ryan Joyce, ME; David Highman, ME; Kyle Kreutz, ME; Andrew Taggart, ME
Faculty Advisor(s): Shawn Midlam-Mohler
Industry Sponsor: OSU Center for Automotive Research
Industry Contact(s): N/A

104  Buckeye Bullet III Body Panel Attachment System
Students: Matthew Buzza, ME; Cameron Hodge, ME; Ryan Van Fossen, ME
Faculty Advisor(s): Shawn Midlam-Mohler
Industry Sponsor: OSU Center for Automotive Research
Industry Contact(s): N/A

105  Buckeye Current Electric Motorcycle Lift Device
Students: William Irwin, ME; Daniel Kroger, ME; Brooke Norval, ME; Chukwunyere Ofoegbu, ME
Faculty Advisor(s): Shawn Midlam-Mohler
Industry Sponsor: OSU Center for Automotive Research
Industry Contact(s): N/A

106  EcoCAR 2 Advanced Battery Management
Students: Andrew Huster, ECE; Derek Moore, ME; Justin Finks, ME; John Hertel, ME
Faculty Advisor(s): Shawn Midlam-Mohler
Industry Sponsor: OSU Center for Automotive Research
Industry Contact(s): N/A

107  EcoCAR 2 Hood Lightweighting  
Best in Capstone Design
Students: M.J. Yatsko, ME; Adam Mcjunkin, ME; Robert Tsao, ME; Doug Reed, ME; Sarah Jadwin, ACCT
Faculty Advisor(s): Shawn Midlam-Mohler
Industry Sponsor: OSU Center for Automotive Research
Industry Contact(s): N/A
108  **EcoCAR Exhaust**  
Students:  Greg Jankord, ME; Greg Payne, ME; Ya Xing He, ME  
Faculty Advisor(s):  Shawn Midlam-Mohler  
Industry Sponsor:  OSU Center for Automotive Research  
Industry Contact(s):  N/A

109  **Formula SAE Wings**  
Students:  Glenn Arnett, ME; Andrew Belega, ME; Mike Behan, ME; Collin Mocas, ME  
Faculty Advisor(s):  Shawn Midlam-Mohler  
Industry Sponsor:  OSU Center for Automotive Research  
Industry Contact(s):  N/A

110  **Magic CAN Node**  
Students:  Aaron Bonnell-Kangas, ECE; Julia Cline, ECE; Nathan Lord, ECE; Anil Ozyalcin, ECE  
Faculty Advisor(s):  Shawn Midlam-Mohler  
Industry Sponsor:  OSU Center for Automotive Research  
Industry Contact(s):  N/A

111  **OSU EcoCAR 2 Composite Trunk Lid**  
Students:  Ben Stumpf, ME; Chris Miller, ME; Zack Wake, ME  
Faculty Advisor(s):  Shawn Midlam-Mohler  
Industry Sponsor:  OSU Center for Automotive Research  
Industry Contact(s):  N/A
Multidisciplinary Engineering

112 Automobile Bumper Storage
Students: David Young, ISE; Mariya Kim, ISE; Max Tongtae, BME; Zack Sanborn, CSM; Brandon Letcher, ME
Faculty Advisor(s): Jerald Brevick, Robert Rhoads
Industry Sponsor: Honda of America Manufacturing
Industry Contact(s): Diana Bush

113 Burden Aircraft Factory
Students: Jonathan Tung, ME; Ran Li, ME; Ray Tan, ME; Emily De Yarman, Inter Stds; Koh Schooley, Comp Neur
Faculty Advisor(s): Robert Rhoads
Industry Sponsor: Chris Burden
Industry Contact(s): Nigel Briand

114 CampusParc Solar Structure
Students: Ben Jaworski, Arch; Zac Dolch, ME; Nick Weaver, CSM; Patrick Bosch, CE; David Kolakowski, ME; Ryan O'Donnell, ME; Mohammed Misbah, MBA
Faculty Advisor(s): Scott Potter, Peter Rogers, Paul Laurent
Industry Sponsor: CampusParc
Industry Contact(s): Sarah Blouch

115 Cardinal Health Inbound Processing Mobile Cart
Students: Carla Garver, MBA; Sara Villaflor, FIN; Brett Babin, ME; Nicholas McKeen, ME; Amy Strenk, ISE; Naomi Alula, ISE
Faculty Advisor(s): Gary Allread, Robert Rhoads
Industry Sponsor: Cardinal Health NLC
Industry Contact(s): Juan Jiminez, Jerry Searls

116 Coltene Project
Students: Rahnuma Chowdhury, MSE; Kristin Good, ME; Brad Homyak, BME; Marty Spang, BME; Matthew Wheeler, MSE
Faculty Advisor(s): Clifford Whitfield, William Clark
Industry Sponsor: Coltene
Industry Contact(s): Robert Priest, Amy Tuttle, Angela Roman

Best in Capstone Design
Dairy Plant Water Conservation by CIP System Redesign and Loadout of Cow Drinkable High BOD Water
Students: Emma Schroder, FPE; Amanda Peterson, BIOE; Anna Ameser, ME; Emily Mendel, Agri Bus
Faculty Advisor(s): Robert Rhoads
Industry Sponsor: Snowville Creamery
Industry Contact(s): Warren Taylor

Design and Development of Optimal Pill Crusher and Pill Storage System
Students: Courtney Scherer, ME; Simon Kalouche, ME; Joseph Armand, BME; Jeremy Hitchcock, Ind. Design (CCAD); Ty Bustamante, Ind. Design (CCAD)
Faculty Advisor(s): Peter Rogers, Greg Thune
Industry Sponsor: eNNOVEA
Industry Contact(s): Chris O'Keefe, Chris Gardner

Design of a Distribution System from a Bulk Container to Various Smaller Containers for a Viscous Medium
Students: Sam Perozek, ME; Zach Brand, ME; Whitney Kennie, CBE; Luis Peraza, Ind. Design (CCAD); Sean Pettiford, Ind. Design (CCAD)
Faculty Advisor(s): Peter Rogers, Greg Thune
Industry Sponsor: Elmer's
Industry Contact(s): Shawn Heipp

Educational Game for Children in partnership with COSI and Auld
Students: Kaleb Reed, ME; Shawn Wang, ME; Alyssa Gerals, ISE; Katie Young, Ind. Design (CCAD); Himanshu Ahuja, MBA
Faculty Advisor(s): Peter Rogers, Greg Thune
Industry Sponsor: Auld Technologies
Industry Contact(s): Elizabeth Jutte

Best in Capstone Design
121 Effect of Debris on Position Sensor
Students: Bo (Matt) Bao, EP; Jack White, ME; Taylor Cramer, ECE; Joel Doherty, Inter Stds
Faculty Advisor(s): Joanne Degroat, Robert Rhoads
Industry Sponsor: John Deere
Industry Contact(s): Jacob Lin

122 Honda Fuel Level
Students: Achal Singhal, ME; Qian Zhang, ME; Maxwell Layman, ME; Saeid Loghavi, ME
Faculty Advisor(s): Michael Hoffmann, Robert Rhoads
Industry Sponsor: Honda R&D
Industry Contact(s): Kellen Beauchesne

123 Honda R&D CAE Material Database
Students: Jacob Nassau, ME; Jonathan Darrah, ME; Sean LeFever, MSE; Shantanu Khemani, CSE; Nicholas Sauber, CSE; Kislaya Kanan, CSE
Faculty Advisor(s): Alan Luo, Robert Rhoads
Industry Sponsor: Honda R&D
Industry Contact(s): Duane Detwiler

124 Humanitarian Engineering- Aquaponics
Students: Jeremy Shechter, FABE; Jeff Thaler, Agri Bus; Liz Roche, Plt Path; Peter Boyer, Grad. BME; Nate Roberto, FIN; Kat Dickey, ACCT; Brandy Alexander, ACCT
Faculty Advisor(s): Howard Greene, Robert Rhoads
Industry Sponsor: GE- Humanitarian Engineering
Industry Contact(s): N/A

125 Investigation of Automated Hole-Checking Technologies for Honda Manufacturing
Students: Eric Kimmet, ISE; Austin Shafer, ME; Ryan Snodgrass, ME; Olivia Tunney, ME
Faculty Advisor(s): Jerald Brevick, Robert Rhoads
Industry Sponsor: Honda of America Manufacturing
Industry Contact(s): Dave Gourley, Fred Braun
126 Mechanical Lift Assist for Lake Shore Cryotronics THz Characterization System
Students: Logan Gingery, ME; Paul Gilmore, ME; Connor Weisent, ISE; Cassandra Douglas, Ind. Design (CCAD); Zijin Li, ECE; Ria Chakravorty, MBA
Faculty Advisor(s): Peter Rogers, Greg Thune
Industry Sponsor: Lake Shore Cryotronics
Industry Contact(s): Dave Ghioldi

127 Oil Pumping Capacity Through Clutch Friction Disks
Students: Chris Stanislovaitis, ME; Laura Matacia, ME; Allick Olive, ME; Phil Claes, ME
Faculty Advisor(s): Brian Harper, Robert Rhoads
Industry Sponsor: John Deere
Industry Contact(s): Matt Kiser, Jacob Lin

128 Oven Skin Temperature Reduction
Students: Nathan Fisher, ISE; Andrei Iacob, ME; Yakun Li, ME; Yidong Zhu, ME
Faculty Advisor(s): Robert Rhoads
Industry Sponsor: Manitowoc
Industry Contact(s): Derek Walz, Ryan Stickle

129 Rapid Gas Decompression (Explosive Decompression) of Polymers
Students: Andrew Ondrejcak, ME; Adam Gilbertson, MSE; Adam Pridgen, CBE; Logan Van Der Molan, ME
Faculty Advisor(s): David Tomasko, Sumont Patankar, John Lannutti, Robert Rhoads
Industry Sponsor: Cameron
Industry Contact(s): Chen Xuming, Hamid Salem
130  **The Gripper Glove**  
Students: Nicholas DiGiulio, BME; Michael Gersman, MSE; Matthew Hinzman, MSE; Xiaodi Hu, BME; Laurence Lenoir, CBE; Alan Scheanwald, ME  
Faculty Advisor(s): Paul Clingan, Robert Rhoads  
Industry Sponsor: The Gripper Glove, Inc.  
Industry Contact(s): Robert Sajovic, John Sajovic

131  **TS Tech Seat Noise Analysis**  
Students: Kyle Streetz, ME; Mark Mulka, ME; Dulith Hewa-Waladanage, ISE; Jing Xu, ECE; Brett Gieger, BME  
Faculty Advisor(s): Clifford Whitfield  
Industry Sponsor: TS Tech  
Industry Contact(s): Bill Swick, Brendan Daun, Jonathan Vince

132  **US Steel Multidisciplinary Capstone Project**  
Students: Greg Colvin, ME; Andrew Gil, ME; Kyle Phillips, ME; Brian Grzybowski-Cuff, ECE; Frank Simmons, ECON  
Faculty Advisor(s): Clifford Whitfield  
Industry Sponsor: U. S. Steel  
Industry Contact(s): Mike Kurko

133  **VMAX Energy**  
Students: Vandan Chokshi, ME; Ryan Petitti, ME; Anthony Zingale, EP; Alexis Thomas, ISE; Keeron Ghose, MOLGEN  
Faculty Advisor(s): Clifford Whitfield  
Industry Sponsor: VMax Energy  
Industry Contact(s): Brian Gould
Welding Engineering

134 Comparing DCEP and AC Polarity GMA Welding of Aluminum
Students: Andrew DeLong, WE; Kevin Girard, WE
Faculty Advisor(s): Avraham Benatar
Industry Sponsor: Lincoln Electric
Industry Contact(s): Mike Barrett

135 Effect of Light Cleaning on Electrode Life During Resistance Spot Welding of Aluminum
Students: James Beaver, WE; James Rayo, WE; Benjamin Harris, WE
Faculty Advisor(s): Kimchi Menachem
Industry Sponsor: Honda of America Manufacturing
Industry Contact(s): Kevin Schnipke

136 Impact of Light Dressing Electrodes for Aluminum Resistance Spot Welding
Students: James Rayo, WE; James Beaver, WE; Ben Harris, WE
Faculty Advisor(s): Kimchi Menachem
Industry Sponsor: Honda of America Manufacturing
Industry Contact(s): Kevin Schnipke
Computer Science and Engineering

137  iPad Application for Therapy and Practice of Fine Motor Skills
Students: Andrew Klimczak, CSE; Michael McNamara, CSE; Christopher Meek, CIS; Tien Ngo, CSE
Faculty Advisor(s): Suribabu Jayanti
Industry Sponsor: The Ohio State University
Industry Contact(s): Jill Heathcock

138  OSC Information App
Students: Anurag Kalra, CSE; Justin Edge, CSE; Obinna Ngini, CSE; Matthew Kershaw, CSE; Kaushik Velidandla, CSE
Faculty Advisor(s): Suribabu Jayanti
Industry Sponsor: Ohio Supercomputer Center
Industry Contact(s): Brian Guilfoos

139  Brief Kinesthesia Test
Students: Kyle Voisard, CSE; Mitch Humke, CSE; Hongyuan Lu, CSE
Faculty Advisor(s): Perumal Ramasamy, Mark Ruegsegger
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Alexandra Borstad

140  Analyzing Employment Data
Students: Nicholas Kefauver, CSE; Gautham Vemulapalli, CSE; Tracy Parsons, CSE; Mohamed Hussein, CSE
Faculty Advisor(s): Moez Chaabouni
Industry Sponsor: The Ohio State University
Industry Contact(s): Phillip Hill
141  **CAE Material Property Database Application – Honda of America**  
Students: Shantanu Khemani, CSE; Kislaya Kanan, CSE; Nicholas Sauber, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Honda R&D  
Industry Contact(s): Duane Detwiler

142  **Demographic / Psychographic Data Analysis**  
Students: Harsh Shah, CSE; Aakanksha Agnani, CSE; Kaustubha Amaravadi, CSE; Nikhita Bahuguna, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Astute Solutions  
Industry Contact(s): Luke Molnar

143  **Pinpoint Growth**  
Students: Elias Franz, CIS; Xiaoran Hu, CSE; Sheng Lu, CSE; Boyu Liu, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Mark Yoho  
Industry Contact(s): Mark Yoho

144  **Zembretta**  
Students: Ariana Fridrich, CSE; Aneeth Krishnamoorthy, CSE; Cole Fennel, CSE; Krishna Achanta, CSE; George Moussi, CSE; Nick Darrel, CSE; Anna Lin, CSE  
Faculty Advisor(s): Moez Chaabouni, Rick Wagner  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Moez Chaabouni

145  **Zembretta**  
*Best in Capstone Design*  
Students: Matt Daley, CSE; Barry Robinson, CSE; Nick Ditmer, CSE; Andrew Krieger, CSE; Cajetan Dsilva, CSE; Alex Xu, CSE; Himanshu Shivhare, CSE  
Faculty Advisor(s): Moez Chaabouni, Rick Wagner  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Moez Chaabouni
146 **AWISCO Website Redesign**
Students: Abigail Hahn, CSE; Angel Pay, CSE; Alexa McIlrath, CIS; Siddarth Gowda, CSE; Samuel Okin, CIS
Faculty Advisor(s): John Thomas
Industry Sponsor: AWIS, Central Ohio
Industry Contact(s): Komal Rambani

147 **Clean and Sober Toolbox**
Students: Jeffrey Schobelock, CSE; Maxim Kim, CSE; Tyler Hugenberg, CSE; Vikram Wakade, CSE; Nitish Jindal, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: Paul Caimi, Attorney At Law
Industry Contact(s): Paul Caimi

148 **DPART: Disaster Preparedness Analysis and Reporting Tool**
Students: Chelsea Gross, CSE; Maxwell Henry, CSE; Mariel Penkowski, CSE; Mark Porter, CSE; Matthew Koczwara, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: Readiness Analytics, LLC
Industry Contact(s): David Lindstedt

149 **Medical Platform Dashboard Mobile App**
Students: Nicholas Joodi, CSE; Summer Cui, CSE; Steven Kim, CSE; Isaac Post, CSE; Bharat Gogineni, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: Cardinal Health
Industry Contact(s): Tom Cliff, Carlo Vedovado

150 **Mouseville**
Students: Curtis Wilson, CSE; Nayan Khodke, CSE; Neha Choudhari, CSE; Abhang Sonawane, CSE; Benjamin Ng, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: David Taffany
Industry Contact(s): David Taffany
151 **New Motion Robotics**
Students: Matthew Demarest, CSE; Santosh Kantharaj, CSE; Ratul Khosla, CSE; Matthew Radosavljevic, CSE; Chenghan Zou, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Stephen Page

152 **The Future of Newspapers**
Students: Seth Darbyshire, CSE; Trevion Henderson, CSE; Richard Gullo, CSE; Kyle Brake, CSE; Brad Lybarger, CSE
Faculty Advisor(s): John Thomas
Industry Sponsor: The Columbus Dispatch
Industry Contact(s): Bob LeBoeuf, Jax Zachariah, Manirupa Das

153 **Kinect Physical Therapy Rehabilitation**
Students: Stephen Bedell, CIS; Blake Offord, CIS; Tien Le, CSE; Vineeta Singh, M.S. CSE; Vignesh Rangaishenvi, M.S. CSE
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Lise Worthen-Chaudhari

154 **Nationwide Children’s Hospital Mobile Safety Application**
Students: Michael Rauh, CSE; Brandon Seich, CSE; Andrew Djin, CSE; Sebastian Thimmig, CSE; Linus Falck-Ytter, CIS; Andy Shaw, CIS; Peter Dy, M.S. NUR; Meg Kane, M.S. NUR
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: John and FloAnn Easton, Nationwide Children’s Hospital
Industry Contact(s): Lara McKenzie, Kristin Roberts, Lucas Dixon
OSU Traumatic Brain Injury Identification Method
Students: Franklin Sun, CIS; Nick Krisfalusy, CSE; Alcir David, CSE; Ahmad Farag, CSE
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: The Ohio State University
Industry Contact(s): Lise Worthen-Chaudhari, John Corrigan

Recreational Rehab Coach Mobile App
Students: Michael Boker, CSE; Ryan Gibson, CIS; Charles King, CIS; Frank Fulajtar, CSE
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: The Ohio State University Dodd Rehabilitation Center
Industry Contact(s): Marcie Bockbrader, Lise Worthen-Chaudhari

Saving Hearts
Students: Eric Kane, CIS; Bobby Rohweder, CSE; James Balata, CSE; Maya Sugembong, CSE
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Martha Gulati, Lise Worthen-Chaudhari

Trail Making: Stroke Therapy
Students: Feng Hong, CSE; Hsien-Ming Lee, CSE; Phil King, CSE; Kevin Bhasin, CSE; Richard Hutcheson, CSE
Faculty Advisor(s): Perumal Ramasamy
Industry Sponsor: The Ohio State University Wexner Medical Center
Industry Contact(s): Lise Worthen-Chaudhari, Jodelle Jones, Melanie Swan
Get Away
Students: Quentin Bloomfield, CSE; Keegan Donnelly, CSE; Jacob Grealy, CSE; Zachary Knickerbocker, CSE; Nathaniel Niederkorn, CIS; Sean Peck, CSE
Faculty Advisor(s): Roger Crawfis
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

Infinite Legions
Students: Rocky Forehand, CSE; Ben Bricker, CSE; Tom Wallace, CSE; Mitch Cooley, CIS; Garrett Davis, CIS
Faculty Advisor(s): Roger Crawfis
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

Mine the Gap
Students: William Ruck, CSE; Erik Schilling, CSE; David Householder, CSE; Michael McCarrick, CSE & EP; Brett Mugglin, CSE; Geoffrey McGinnis, CSE
Faculty Advisor(s): Roger Crawfis
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

Mission Impawsible
Students: Kim Boydstun, CSE; David Hazlett, CSE; Ian Freshwater, CSE; Michael Filliater, CSE
Faculty Advisor(s): Roger Crawfis
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A

Squirvival
Students: Stephen Erickson, CSE; Daniel Frecka, CSE; Brandon Patridge, CSE; Jared Hagans, CSE; Cameron Hopkins, CSE; Thomas Allenbaugh, CSE
Faculty Advisor(s): Roger Crawfis
Industry Sponsor: The Ohio State University
Industry Contact(s): N/A
Computer Science and Engineering

A  O.T.A.A.C. (Ohio Technology, Aerospace, and Aviation Committee)
   Students:  Kelsey Fritschie, CSE; Michael Steger, CSE; Christian Mavripis, CIS; Derek Visner, CSE
   Faculty Advisor(s): Suribabu Jayanti
   Industry Sponsor: Tridec Technologies
   Industry Contact(s): Dave London, Brad Pfefferle

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   Industry Sponsor: The Ohio State University Fisher College of Business
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   Faculty Advisor(s):  John George
   Industry Sponsor:  The Ohio State University

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   Faculty Advisor(s):  John George
   Industry Sponsor:  The Ohio State University

I  Covelli Arena Schematic Design
   Students:  Ray Roll, CE; Joe Horton, CE; Mark Hartman, CE; Greg Conroy, CE; Ryan Ferrante, CE
   Faculty Advisor(s):  John George
   Industry Sponsor:  The Ohio State University

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11th Annual FEH Research Showcase
First-Year Engineering Honors Nanotech Projects

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    Faculty Advisor(s): Paul Clingan

X2 Students: Patrick Hamad, Leila Mansour, Brent Weiss, Tyler Zeller
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X3 Students: Frederick Gu, Deepti Gupta, Usama Khan, Zane Smith
    Faculty Advisor(s): Paul Clingan

X4 Students: Craig Bennett, Jonathon Davis, Andrew Kelo, Culver McWhirter
    Faculty Advisor(s): Paul Clingan

X5 Students: Lauren Braswell, Kathryn Gustafson, Sabrina Horsham, Kacper Wardega
    Faculty Advisor(s): Paul Clingan

X6 Students: Turner Adornetto, Usoshi Chatterjee, Luke Forshey, Ryan Schoell
    Faculty Advisor(s): Paul Clingan

Y1 Students: Victoria Barnhouse, Samantha Peterson, Nicholas Riedell, Evan Wilker
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Y2 Students: Celene Gielink, Taylor Schriver, Joshua Tublin
    Faculty Advisor(s): Deb Grzybowski

Y3 Students: Matthew Feck, Daniel Glauser, Jill Kanney, Justin Lun
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Y4 Students: Nana Anim, Will Ennis, Mitchell Steindler, John Twist
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Y5  Students: Nate Hang, Eric Hlinomaz, John Jamieson, Jonathan Lawson
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Y7  Students: Jack Harrington, Gabe Nogueira Meza, Stuart Ruck, Zheng Hang Tan
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Z1  Students: Bernard Cook, Jesse Keckler, Lagnajit Pattanaik, Patrick Stinson
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Engineering Capstone Design Program

The College of Engineering at The Ohio State University is a leader in creating and implementing substantive industry experiences for undergraduate engineering students. Our engineering programs have a rich history of using projects developed and sponsored by industry for student capstone design courses. All programs within the College of Engineering require a capstone design experience for graduation. The capstone design course integrates design skills and engineering practice with a focus on authentic design challenges presented and supported by industry partners and faculty. The EEIC fosters industry partnerships with The Ohio State University through the EEIC Multidisciplinary Capstone Design program and through all engineering departments by connecting companies with appropriate programs.

For more information, visit http://eeic.osu.edu/capstone or contact:

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Engineering Education Innovation Center

The College of Engineering is recognized nationally for its commitment to outstanding undergraduate education through our First-Year Engineering Program; providing practical, hands-on engineering experience through project-based design courses; providing opportunities for undergraduate research experiences; and our individualized attention to undergraduate students to facilitate their academic and professional success. To further enhance efforts in providing the highest quality engineering education, Ohio State established the Engineering Education Innovation Center in May 2007 with the mission of enriching the student experience and strengthening the academic credentials of our undergraduates. Simultaneously, the Honda Professorship for Engineering Education was established to supply leadership to the new center.

The EEIC is the focal point for the college’s innovative instructional programs, building upon our outstanding reputation for and commitment to innovative undergraduate education. The EEIC provides academic, personal, and professional activities, enriching the undergraduate experience inside and beyond the classrooms. The EEIC also created new courses and programs, and strengthened existing ones to empower students for an ever-expanding range of career and entrepreneurship opportunities.

The performance goals of the EEIC include:
- Promotion, innovation and creativity in all of our undergraduate programs
- Offering multidisciplinary courses and opportunities for students that enhance experience
- Fostering scholarship of teaching and learning across the college

For more information, visit http://eeic.osu.edu or contact:

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The committee would also like to show its appreciation for the students who are involved with the projects displayed today.

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