2021 Fall Engineering Design

CELEBRATION

Awards Ceremony | Wednesday, December 15th
Welcoming Remarks

Dr. Ajay Prasad
Dept. Mechanical Engineering

Dr. Kristi Kiick
Dept. Biomedical Engineering
Fall 2021 Engineering Design

- E³ High School Design Competition
- Statics Design Challenge
- Mechanical Engineering Junior Design
- Advanced Robotics Design Competition
- Interdisciplinary Senior Engineering Design
UD College of Engineering
HIGH SCHOOL COMPETITION
E³: Engineering Education Ecosystem Program
High School Design: **By the Numbers**

- **4** Partner High Schools
- **40** Student Teams
- **12** Semi-Finalists
- **15** Peer Advisors
High School Design Awards
Presented by Prof. Haritha Malladi

Concord High School, Team 2
"Lanternfly Trap with Effective Vineyard Application for Assembly by Students with Disabilities"
by Nicholas Henry, Miles Bliey

Year-Long

Semester-Long

Padua High School Team 1
"Hydraulics with Harry: An Interactive Physics learning tool"
by Julianna Balon, Emma Lowe, Tiara Nelson, Caroline Wang
Department of Mechanical Engineering

STATICS DESIGN CHALLENGE

MEEG210: Statics, Sophomore Year
Statics Design Challenge: **By the Numbers**

- 154 Students
- 40 Teams
- 1 Small Business Partner
- 39 Sheets of Plywood
- 6 Weeks of Build Time
Statics Design Challenge Winner
Wooden Wheels Bike Frame Project

Team 137: Jensen Gaither, Julieta Andrino, Bhav Palla, Nick Bailey
Department of Mechanical Engineering
JUNIOR DESIGN PROGRAM
MEEG301 & MEEG304: Machine Design I & II
Junior Engineering Design: By the Numbers

136 Students
14 Teams
2 Industry Partners
16 Industry Mentors
1 Really Small Work Room
Many thanks to our JUNIOR DESIGN MENTORS

Kevin Cresswell
Bill Dunfee
Nick Filzen
Ed Gargiulo
Austin Crouse
Keith Harman
Justin Rigg

Adam Bitar
Anthony Dorazio
Kevin Perdue
Chris Sockel
Melody Cerro
Richard Griste
Ryan Tocker
Best Bottle Filling Station

Team 2
Team Members: Nick Benzi, Brian Fischer, Vea Hernandez, Alaysia Longmire, Claire Cho, Elias Navarro, Victor Riso, Nick Capriotti, Mike Naab

Team 7
Team Members: Chris Bond, Mickayla Harris, Evan McCleary, Nikki Pilla, Nick Ulizio, Andrew Brillante, Brooke Demore, Timmy Hough, Caylin Payne, Holly Tobon

Team 9
Team Members: Zach Cantrell, Dylan Jorgensen, Megan Monteleone, Ryan Rudek, Dean Vanegas, Rory van der Steur, Ben Donohue, TJ Kaifer, Avery Recicar, Ethan Watson
Best Bottle Capping Station

Team 3
Team Members: Matt Conelli, Joe Gugerty, Jonathan Jimenez, Alex McCall, Lance Adrian Mendoza, Jt Palitto, Edwin Rivera, Ryan McMahon, Matthew Richardson

Team 6
Team Members: Brendan Allen, Eli Haiko, Oscar Marino, Nicolino Patone, Samuel Small, Pearce Bragaw, Zeke Dela Cruz, Cole Hirsch, Sean Morrison, William Testa

Team 11
Team Members: Daniel Drewnowski, Johnny Lasko, Prathmesh Anant Naik, Raj Shah, Jenny Ziegler, Tyler Cook, Aaron Fieger, Tyler Mehigan, Christina Genario, Alexandra Zurzolo
Most Innovative Design

Team 7
Team Members: Chris Bond, Mickayla Harris, Evan McCleary, Nikki Pilla, Nick Ulizio, Andrew Brillante, Brooke Demore, Timmy Hough, Caylin Payne, Holly Tobon

Team 8
Team Members: Daniel Borsykowsky, Lorrha Hitchner, Cassidy McCormick, Sam Rauch, Andrew Brown, Owen Brinker, Doug DiDomenico, Sicheng Huang, Miles Pleasanton, Hannah Towhey

Team 14
Team Members: Sebastian Graper, Rocky Li, John Papadopoulos, Harrison Silverston, Sarah Bartlett, Dominic d'Agostino, David Harkins, Riley O'Connor, Jordan Tatis, Ethan Chappell
Best Overall Design

Team 2
Team Members: Nick Benzi, Brian Fischer, Vea Hernandez, Alaysia Longmire, Claire Cho, Elias Navarro, Victor Riso, Nick Capriotti, Mike Naab

Team 9
Team Members: Zach Cantrell, Dylan Jorgensen, Megan Monteleone, Ryan Rudek, Dean Vanegas, Rory van der Steur, Ben Donohue, TJ Kaifer, Avery Recicar, Ethan Watson

Team 14
Team Members: Sebastian Graper, Rocky Li, John Papadopoulos, Harrison Silverston, Sarah Bartlett, Dominic d’Agostino, David Harkins, Riley O’Connor, Jordan Tatis, Ethan Chappell
People’s Choice Award

Team 10
Team Members: Justin DiGiovanni, Tim Laird, Harrison Muller, Trevor Seitel, Katelyn Youn, Jay Castro, Maredy Felipe-Lucas, Andrew Marino, Cam Schultz, Shakti Zala
Department of Mechanical Engineering
Advanced Robotics
Robotics Competition Winners

1st  
Team 4: Guilherme Moura E Osorio De Valdoleiros, Rob Samuelson

2nd  
Team 1: Vaughn Chambers, Chrysostomos Karakasis

3rd  
Team 2: Pat Bredbenner and Alex Schneider
Dept Mechanical & Biomedical Engineering

SENIOR ENGINEERING DESIGN

MEEG401, MEEG402, BMEG460
Senior Engineering Design: **By the Numbers**

- **224** Students
- **52** Teams
- **4** Engineering Majors
- **32** Sponsors
- **14** Faculty
- **13** Staff Members
- **53** Evaluators
- **16** Weeks of Hard Work
Many thanks to our

EXTERNAL SPONSORS

Abbott
Agilent Technologies
Andrew Meyer (Engineer, Northrop Grumman)
Applied Diamond Inc
Avkin
Bayada Pediatric Homecare
Bloom Energy
CHL Systems
Christiana Care Occupational Therapy
CNH Industrial
Datwyler
DowAksa
ECHO Stethoscope LLC
Elasthetics LLC
Globus Medical
Keurig Dr Pepper
MDavis / Preston's March
MORE Foundation
NAPCO Pipe & Fittings
Norwalt Design
Piasecki Aircraft Corporation
Procter & Gamble
Qfix
Siemens Healthcare Diagnostics
Stanley Black & Decker
Terumo Medical Corporation
Thermo Fisher Scientific
Under Armour
W.L. Gore
Many thanks to our academic sponsors

University of Cape Town, South Africa
  Sivarasu Lab

University of Pennsylvania
  New Bolton Center

University of Delaware
  Center for Composite Materials
  Early Learning Center
  Innovation Health & Design Lab
  Dept. Biomedical Engineering: Elliott Laboratory
  Dept. Civil Engineering: Puleo Laboratory
  Dept. Material Sciences: Mackay Laboratory
  Dept. Plant & Soil Sciences: Meng Laboratory
  Dept. Plant & Soil Sciences: Sparks Laboratory
Many thanks to our **STAFF**

**Whitney Sample**  
Scott Nelson  
Steve Beard  
Brian Brant  
Al Lance  
Christos Sarmousakis  
Design Studio TAs  
Machine Shop TAs

**Elaine Nelson**  
Vicky Tosh-Morelli  
Ann Connor  
Amy Adams  
Allie Andrews  
Michele Schwander  
Nancy England
2021 Senior Design

FACULTY

Jenni Buckley, PhD
David Burris, PhD
Joe Feser, PhD
Jim Glancey, PhD, PE
S. Dyer Harris, PhD, PE
Mike Keefe, PhD, PE
Ashu Khandha, PhD

Julie Karand, PhD
David McKee, PhD
Ajay Prasad, PhD
Sarah Rooney, PhD
Steve Timmins, PhD
Tyler Van Buren, PhD
Adam Wickenheiser, PhD
Many thanks to our

SENIOR DESIGN EVALUATORS

Beth Paquette  
Sean Boston  
Matt Delaney  
Andy Cloud  
Stephen Popiel  
Ronald Moore  
Ed Nowak  
Grace McIlvain  
Curtis Johnson  
Hisham Sherif  
Anna McGough  
Vinu Rajendran  
Joy Goswami  
Krista Murray  
Meg Smith  
John DeLucca  
Melody Cerro

Matthew Liebowitz  
John Barber  
Subbiah Swaminathan  
Mark Bendett  
Brooks Twilley  
George Gianforcaro  
Ed Gargiulo  
Kyle Cardno  
Chelsea Thompson  
Brian Givens  
Matt Buckley  
Tyler Urbaniak  
Zachary Goldstein  
Jasmine Pearcy  
Mike Santare  
Stephen The  
Erin Sparks  
Frank Lerro

Hanna Scott  
Kevin Hill  
Dani Gerstman  
Charlie Boncelet  
Sean Merklin  
Mike Crossley  
Bill Fagerstrom  
Dawn Elliott  
Joshua Cashaback  
Jay Gunasekera  
Paul Costello  
Paul Hagerty  
Tom Zambeno  
Kristi Kiick  
Alex Beyer  
Caroline Williams  
Nate Cloud  
Adam Bitar
Senior Engineering Design

The Awards

Design Discipline Awards
Process Improvement Award
Presented by Prof. Dave Burris

105: Automation of meat stick packaging operation
Team Members: Reiley Bond, Colin Baker, Melissa Hickman, Christian Coolbaugh
Sponsor: CHL Systems | Advisor: Prof. Jim Glancey

107: Conveyor guide for elastomer bricks
Team Members: Ethan Holcroft, Emily Martin, Stephen Crilley, Patrick Beaudoin
Sponsor: Datwyler | Advisor: Prof. Jim Glancey

111: Certa-Lok® Field Grooving Tool
Team Members: Ethan Bishop, Ryan Singh, Matthew Walton, Richard Joyce
Sponsor: NAPCO Pipe & Fittings | Advisor: Prof. David McKee

117: Cuvette Assembly Automation
Team Members: Amy Lineberger, Allysa Mae Tuano, Matthew Gardner, Kory Pringle
Sponsor: Siemens Healthcare Diagnostics | Advisor: Prof. Jim Glancey

119: Powered Quick Grip Clamp
Team Members: Dylan Popp, Christopher Ambrozy, Sarah Ott, Braden Rishell
Sponsor: Stanley Black & Decker | Advisor: Prof. David McKee

121: Macro-Volume Variable Path Liquid Sampling Mechanism
Team Members: Jacob Laznik, Jonathan Meskin, Justin Reel
Sponsor: Thermo Fisher Scientific | Advisor: Prof. David Burris

216: Optimization of an extruder for 3D printing core-shell polymers used in rehabilitative devices
Team Members: Makoto Saitoh, Jeffrey Neumann, Jennifer Michaels, Alex Schneider
Sponsor: UD Materials Science: Mackay Lab | Advisor: Prof. Michael Keefe
New Product Development Award

Presented by Prof. Ashu Khandha

103: Wearable dialysis shunt/AV fistula care simulator
Team Members: Nicholas Tansey, Nicholas Sekulski, Tiffant Tillinghast, Amanda Licht  
Sponsor: Avkin | Advisor: Prof. Jenni Buckley

119: Powered Quick Grip Clamp
Team Members: Dylan Popp, Christopher Ambrozy, Sarah Ott, Braden Rishell  
Sponsor: Stanley Black & Decker | Advisor: Prof. David McKee

120: Dual Hard Floor Cleaning Solution
Team Members: Jacob Grueninger, Chaehoon Kim, Erin Potter, Madelyn Uebel  
Sponsor: Stanley Black & Decker | Advisor: Prof. David McKee

129: N95 Mask Filtration Test Equipment
Team Members: Andrew Gardner, Clare Dudley, Michael Blumenberg, Kayla Borrero  
Sponsor: WL Gore | Prof. Dyer Harris

201: Design of an adaptable dilator for use after anoplasty in infants
Team Members: Carolina Gomez Casas, Dana Wilkins, Sejal Suri, Nicholas Saponaro, Tori Reiner  
Sponsor: University of Cape Town: Sivarasu Lab  
Advisor: Prof. Julie Karand

205: Design of a sensor and alert system for pressure sore detection in individuals wearing casts
Team Members: Helen Wilson, Marc Henriksen, Gavin McDonnell, Tatenda Mlambo, Karissa Kowlessar  
Sponsor: UD Innovation Health & Design Lab  
Advisor: Prof. Ashutosh Khandha

212: Design of a minimally invasive retractor for Lateral Lumbar Interbody Fusion (LLIF) surgery to prevent tissue creep
Team Members: Edward McGettigan, Abigail McCann, Samuel Freer, Carly McGonagle, Victoria Peterson  
Sponsor: Globus Medical Inc.  
Advisor: Prof. Sarah Rooney
Thermal/Fluids Award
Presented by Prof. Joseph Feser

103: Wearable dialysis shunt/AV fistula care simulator
Team Members: Nicholas Tansey, Nicholas Sekulski, Tiffant Tillinghast, Amanda Licht
Sponsor: Avkin | Advisor: Prof. Jenni Buckley

109: On-demand personal soda machine
Team Members: Andrew Dolan, Cade Bosco, Andrew D’Andrea-Schutzman, Luke Donaphon
Sponsor: Keurig Dr Pepper | Advisor: Prof. Dyer Harris

112: Optimization of aircraft engine cowling
Team Members: Sealani McCall, Abubakarr Bah, Gunjan Mehta, Jonathan Vizzi
Sponsor: Andrew Meyer (Engineer, Northrop Grumman) | Advisor: Prof. Adam Wickenheiser

118: Microfluidic Technology Test Bed, Phase III
Team Members: Matthew Balbierer, Galvin Stuart, Jonathan Kim, Christopher Coulaloglou
Sponsor: Siemens Healthcare Diagnostics | Advisor: Prof. Joe Feser

123: Scalable Spillway Design for Highly Aligned Discontinuous Fiber ‘TuFF’ Composites for Aerospace Structures
Team Members: Henry Fidlow, Eli Bogetti, Aidan Ford, Alexander Lee
Sponsor: UD Center for Composite Materials | Advisor: Prof. Mike Keefe

400: Formula SAE
Team Members: John Muller, Chase Lawrence, John Marcinizyn, Qasim Shaikh, Heqing Huang, Yujie Xi, Chet Hoober, William Melick, Loren Tomlin, Lucas Jenkins, Sean Henery, Kyle Morris, Brendan Leonard, Panayiotis Kalamaras, Seiji O’Brien
Advisor: Prof. Steve Timmins
Systems/Dynamics Award
Presented by Prof. Adam Wickenheiser

106: Rigidity of harvester reel tine with embedded permanent magnet
Team Members: Jacob Skrip, Evan Kimble, Doug Andrews, Abram Martin
Sponsor: CNH Industrial | Advisor: Prof. Jim Glancey

108: Carbon fiber Class III utility trailer
Team Members: Adam Fleetwood, Kyle McDonagh, Jessica Betz, Chase Neuberth
Sponsor: DowAksa | Advisor: Prof. Mike Keefe

113: Universal design for star wheel feeder
Team Members: Drake Chen, Caroline Curtiss, Angela Kuczykowski, Jeffrey Spencer
Sponsor: Norwalt Design | Advisor: Prof. Jim Glancey

214: Motorization of adapted tricycle for individuals with cerebral palsy
Team Members: Gianna Leo, Kathleen Donahue, Jackson Smith, Jonathan Trac
Sponsor: Bayada Pediatric Homecare | Advisor: Prof. Sarah Rooney

217: A multi-axial test frame for in-vitro testing of differential biomechanics in scoliosis
Team Members: Gabriela Carlisle, Justin Bouyer, Raith Nowak, Imani Carter, Sean Magee
Sponsor: UD Biomedical Engineering: Elliott Lab | Advisor: Prof. Jenni Buckley

300: Aero SAE - Wings
Team Members: Brigid Morrissey, Benjamin Martin, Isabella Mawry
Advisor: Prof. Adam Wickenheiser
Biomedical Design Award

Presented by Prof. Julie Karand

103: Wearable dialysis shunt/AV fistula care simulator
Team Members: Nicholas Tansey, Nicholas Sekulski, Tiffant Tillinghast, Amanda Licht
Sponsor: Avkin | Advisor: Prof. Jenni Buckley

104: Wearable Tracheostomy Care Simulator for Medical Education
Team Members: Sarah Green, Sarah Bailey, Vishnusundar Somasundaram, Meghan Desmond, Khalil Darouchi
Sponsor: Avkin | Advisor: Prof. Jenni Buckley

204: Design of a new clothing fastener for individuals with disabilities
Team Members: Krislyn Milligan, Danielle Short, Keriann Dignan, Samiyah Ali Khan, MaKenna Chun
Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Julie Karand

207: Optimization of an orthopedic boot design for individuals with achilles tendon rupture
Team Members: Anna Gallo, Evan Callaghan, Sara Rumpler, Kate Shickel | Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Sarah Rooney

209: Optimization of a portable retractable stethoscope design
Team Members: Nicole Bizzano, Kevin Khov, Lauren Smith, Robert Rush | Sponsor: ECHO Stethoscope LLC | Advisor: Prof. Julie Karand

211: Improving quality and functionality of upper extremity prosthesis for children
Team Members: Irene Kocina, Cameron Jones, Ashlyn Kapinski, Aidan Bartley
Sponsor: MORE Foundation | Advisor: Prof. Sarah Rooney

212: MIS Retractor for Lateral Lumbar Interbody Fusion (LLIF) surgery to prevent tissue creep
Team Members: Edward McGettigan, Abigail McCann, Samuel Freer, Carly McGonagle, Victoria Peterson
Sponsor: Globus Medical Inc. | Advisor: Prof. Sarah Rooney

213: Modification of a wheelchair with dynamic tilt for pressure ulcer prevention
Team Members: Marigrace Ferrill, Grace Burns, Nicole Caiazzo, Margaux Deputy, Kathryn Suter
Sponsor: Christiana Care Occupational Therapy Advisor: Prof. Ashutosh Khandha
Natural Resources Design Award
Presented by Prof. Jim Glancey

131: Leak test tool for fuel cell columns
Team Members: Gregory McFadden, Anissa Spano, Alexander Kramer, Lauren Benchoff
Sponsor: Bloom Energy
Advisor: Prof. Jim Glancey

106: Rigidity of harvester reel tine with embedded permanent magnet
Team Members: Jacob Skrip, Evan Kimble, Doug Andrews, Abram Martin
Sponsor: CNH Industrial | Advisor: Prof. Jim Glancey
Mechanoelectrical Design Award
Presented by Prof. Dave Burris

104: Wearable Tracheostomy Care Simulator for Medical Education

109: On-demand personal soda machine

114: Battery cartridge for eVTOL aircraft

124: Actuated wave paddle system for educational wave flume

126: Adaptation of mechanical testing devices for field-based studies of plant biomechanics

127: Crop scanning camera system for vertical indoor farming research

126: Adaptation of mechanical testing devices for field-based studies of plant biomechanics

Team Members: Kai Kang, Chad Romanick, Alex Newkirk, Camille Fischer

Sponsor: UD Plant & Soil Sciences: Sparks Lab

Advisor: Prof. David Burris

213: Modification of a wheelchair with dynamic tilt developed for pressure ulcer prevention

214: Motorization of adapted tricycle for individuals with cerebral palsy

302: UD Aero SAE – Controls
Medical & Rehabilitation Devices Award
Presented by Prof. Sarah Rooney

204: Design of a new clothing fastener for individuals with disabilities
Team Members: Krislyn Milligan, Danielle Short, Keriann Dignan, Samiyah Ali Khan, MaKenna Chun
Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Julie Karand

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Team Members: Irene Kocina, Cameron Jones, Ashlyn Kapinski, Aidan Bartley
Sponsor: MORE Foundation | Advisor: Prof. Sarah Rooney

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Team Members: Gianna Leo, Kathleen Donahue, Jackson Smith, Jonathan Trac
Sponsor: Bayada Pediatric Homecare
Advisor: Prof. Sarah Rooney
Experimental or Educational Tools Award
Presented by Prof. Tyler Van Buren

101: Biomechanical Surrogate for Heart Septum
Team Members: Jacob Ball, Keira Morgan, Nicholas Olsen, Emily Molczan, Shri Prabha Shivram
Sponsor: Abbott | Advisor: Prof. Jenni Buckley

104: Wearable Tracheostomy Care Simulator for Medical Education
Team Members: Sarah Green, Sarah Bailey, Vishnusundar Somasundaram, Meghan Desmond, Khalil Darouchi
Sponsor: Avkin | Advisor: Prof. Jenni Buckley

118: Microfluidic Technology Test Bed, Phase III
Team Members: Matthew Balbierer, Galvin Stuart, Jonathan Kim, Christopher Coulaloglou
Sponsor: Siemens Healthcare Diagnostics
Advisor: Prof. Joe Feser

130: Hall Effect Measurement System for CVD Diamonds
Team Members: Stephanie Ross, Elisha Cameron, Jerel Okonski
Sponsor: Applied Diamond Incn | Advisor: Prof. Joe Feser

215: Optimization of in-vivo wireless strain measurement system for a spinal implant in a pig model
Team Members: David Chester, William Brodowski, Nicholas Finocchiaro, Lexi Anderson, Nikhil Sai
Sponsor: UPenn New Bolton Center
Advisor: Prof. Ashutosh Khandha
201: Design of an adaptable dilator for use after anoplasty in infants
Team Members: Carolina Gomez Casas, Dana Wilkins, Sejal Suri, Nicholas Saponaro, Tori Reiner
Sponsor: University of Cape Town: Sivarasu Lab
Advisor: Prof. Julie Karand

202: Design of a High Altitude Pulmonary Oedema (HAPO) bag for Acute Respiratory Distress Syndrome (ARDS)
Team Members: Badiallo Diani, Emma Kelly, Liza Guner, Kristen Edel
Sponsor: University of Cape Town: Sivarasu Lab
Advisor: Prof. Julie Karand

208: Improvements to Cross-Cut Valve Assembly Stability for Interventional Medical Device
Team Members: Erica Hild, Zachary Rollings, Brittany Donigan, Akram Ahamed, Hannah Gentry
Sponsor: Terumo Medical Corporation
Advisor: Prof. Julie Karand

212: MIS Retractor for Lateral Lumbar Interbody Fusion (LLIF) surgery to prevent tissue creep
Team Members: Edward McGettigan, Abigail McCann, Samuel Freer, Carly McGonagle, Victoria Peterson
Sponsor: Globus Medical Inc. | Advisor: Prof. Sarah Rooney
Senior Engineering Design
The Awards
Prototyping Awards
Best or Most Complex Machining
Presented by Mr. Scott Nelson

216: Optimization of an extruder for 3D printing core-shell polymers used in rehabilitative devices
Team Members: Makoto Saitoh, Jeffrey Neumann, Jennifer Michaels, Alex Schneider
Sponsor: UD Materials Science: Mackay Lab
Advisor: Prof. Michael Keefe

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Team Members: Gabriela Carlisle, Justin Bouyer, Raith Nowak, Imani Carter, Sean Magee
Sponsor: UD Biomedical Engineering: Elliott Lab
Advisor: Prof. Jenni Buckley

400: Formula SAE
Team Members: John Muller, Chase Lawrence, John Marcinizyn, Qasim Shaikh, Heqing Huang, Yujie Xi, Chet Hoober, William Melick, Loren Tomlin, Lucas Jenkins, Sean Henery, Kyle Morris, Brendan Leonard, Panayiotis Kalamaras, Seiji O'Brien
Advisor: Prof. Steve Timmins
Most Chips (Most Machining!)
Presented by Mr. Scott Nelson

122: Blank Holder Design for Variable Deep Drawing of Stretchable ‘TuFF’ Composites for Aerospace Structures
Team Members: Peter Nguyen, Nicholas Brinkmiller, Shane Checko, Hayden Rehn
Sponsor: UD Center for Composite Materials
Advisor: Prof. Michael Keefe

131: Leak test tool for fuel cell columns
Team Members: Gregory McFadden, Anissa Spano, Alexander Kramer, Lauren Benchoff
Sponsor: Bloom Energy
Advisor: Prof. Jim Glancey

207: Optimization of an orthopedic boot design for individuals with achilles tendon rupture
Team Members: Anna Gallo, Evan Callaghan, Sara Rumpler, Kate Shickel | Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Sarah Rooney
Design Studio Prototyping Award
Presented by Mr. Whitney Sample

101: Biomechanical Surrogate for Heart Septum
Team Members: Jacob Ball, Keira Morgan, Nicholas Olsen, Emily Molczan, Shri Prabha Shivram
Sponsor: Abbott | Advisor: Prof. Jenni Buckley

120: Dual Hard Floor Cleaning Solution
Team Members: Jacob Grueninger, Chaehoon Kim, Erin Potter, Madelyn Uebel
Sponsor: Stanley Black & Decker | Advisor: Prof. David McKee

128: Smart Manikin for Garment Design
Team Members: Parker Grobe, Riley Schmitt, Sydney Przywara, Jordan Collins
Sponsor: Under Armour | Advisor: Prof. Jenni Buckley
Senior Engineering Design

The Awards

Open Categories
The People’s Choice Award
Presented by Prof. Jenni Buckley

1st
112: Optimization of aircraft engine cowling
Team Members: Sealani McCall, Abubakarr Bah, Gunjan Mehta, Jonathan Vizzi
Sponsor: Andrew Meyer (Engineer, Northrop Grumman)
Advisor: Prof. Adam Wickenheiser

2nd
204: Design of a new clothing fastener for individuals with disabilities
Team Members: Krislyn Milligan, Danielle Short, Keriann Dignan, Samiyah Ali Khan, MaKenna Chun
Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Julie Karand

3rd
120: Dual Hard Floor Cleaning Solution
Team Members: Jacob Grueninger, Chaehoon Kim, Erin Potter, Madelyn Uebel
Sponsor: Stanley Black & Decker | Advisor: Prof. David McKee
The Grit Award
Presented by Prof. Jenni Buckley

grit
n.
The capacity to recover quickly from difficulties; toughness.

117: Cuvette Assembly Automation
Team Members: Amy Lineberger, Allys Mae Tuano, Matthew Gardner, Kory Pringle | Sponsor: Siemens Healthcare Diagnostics | Advisor: Prof. Jim Glancy

130: Hall Effect Measurement System for CVD Diamonds
Team Members: Stephanie Ross, Elisha Cameron, Jerel Okonski | Sponsor: Applied Diamond Incn | Advisor: Prof. Joe Feser

202: Design of a HAPO bag for ARDS
Team Members: Badiallo Diani, Emma Kelly, Liza Guner, Kristen Edel | Sponsor: University of Cape Town: Sivarasu Lab | Advisor: Prof. Julie Karand

203: Design of a peripheral nerve stimulator for use during colorectal surgery
Team Members: Abby Evans, Sara Duphily, John Gannon, Kyle Grossman | Sponsor: University of Cape Town: Sivarasu Lab | Advisor: Prof. Ashutosh Khandha

210: Detection and visualization of gait events in individuals wearing an ankle-foot orthosis (AFO)
Team Members: Kaitlyn Downer, Ashley-Amber Cannon, Christopher McCartney, Chesca Basilio | Sponsor: Elasthetics LLC | Advisor: Prof. Ashutosh Khandha

211: Improving quality and functionality of upper extremity prosthesis for children
Team Members: Irene Kocina, Cameron Jones, Ashlyn Kapinski, Aidan Bartley | Sponsor: MORE Foundation | Advisor: Prof. Sarah Rooney

217: A multi-axial test frame for in-vitro testing of differential biomechanics in scoliosis
Team Members: Gabriela Carlisle, Justin Bouyer, Raith Nowak, Imani Carter, Sean Magee | Sponsor: UD Biomedical Engineering: Elliott Lab | Advisor: Prof. Jenni Buckley
Most Valuable Project (MVP) Award
Presented by Prof. Ashu Khandha

113: Universal design for star wheel feeder
Team Members: Drake Chen, Caroline Curtiss, Angela Kuczykowski, Jeffrey Spencer
Sponsor: Norwalt Design
Advisor: Prof. Jim Glancey

117: Cuvette Assembly Automation
Team Members: Amy Lineberger, Allysa Mae Tuano, Matthew Gardner, Kory Pringle
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Team Members: Krislyn Milligan, Danielle Short, Keriann Dignan, Samiyah Ali Khan, MaKenna Chun
Sponsor: UD Innovation Health & Design Lab | Advisor: Prof. Julie Karand
Prof. Michael Keefe Award
Presented by Prof. Michael Keefe

108: Carbon fiber Class III utility trailer
Team Members: Adam Fleetwood, Kyle McDonagh, Jessica Betz, Chase Neuberth
Sponsor: DowAksa | Advisor: Prof. Mike Keefe

110: Modular steering system for adaptive bicycles
Team Members: Nathan Belisario, Will Kuper, Marc Giordano, Tristan Thomas
Sponsor: MDavis / Preston’s March
Advisor: Prof. Mike Keefe

112: Optimization of aircraft engine cowling
Team Members: Sealani McCall, Abubakarr Bah, Gunjan Mehta, Jonathan Vizzi
Sponsor: Andrew Meyer (Engineer, Northrop Grumman)
Advisor: Prof. Adam Wickenheiser

130: Hall Effect Measurement System for CVD Diamonds
Team Members: Stephanie Ross, Elisha Cameron, Jerel Okonski
Sponsor: Applied Diamond Incn | Advisor: Prof. Joe Feser
Chairperson’s Award: Biomedical Eng.
Presented by Prof. Ashu Khandha for Prof. Kristi Kiick

201: Design of an adaptable dilator for use after anoplasty in infants
Team Members: Carolina Gomez Casas, Dana Wilkins, Sejal Suri, Nicholas Saponaro, Tori Reiner
Sponsor: University of Cape Town: Sivarasu Lab
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Team Members: Edward McGettigan, Abigail McCann, Samuel Freer, Carly McGonagle, Victoria Peterson
Sponsor: Globus Medical Inc. | Advisor: Prof. Sarah Rooney

213: Modification of a wheelchair with dynamic tilt for pressure ulcer prevention
Team Members: Marigrace Ferrill, Grace Burns, Nicole Caiazzo, Margaux Deputy, Kathryn Suter
Sponsor: Christiana Care Occupational Therapy
Advisor: Prof. Ashutosh Khandha
Chairperson’s Award: Mechanical Eng.
Presented by Prof. Ajay Prasad

112: Optimization of aircraft engine cowling
Team Members: Sealani McCall, Abubakarr Bah, Gunjan Mehta, Jonathan Vizzi
Sponsor: Andrew Meyer (Engineer, Northrop Grumman)
Advisor: Prof. Adam Wickenheiser

128: Smart Manikin for Garment Design
Team Members: Parker Grobe, Riley Schmitt, Sydney Przywara, Jordan Collins
Sponsor: Under Armour | Advisor: Prof. Jenni Buckley

129: N95 Mask Filtration Test Equipment
Team Members: Andrew Gardner, Clare Dudley, Michael Blumenberg, Kayla Borrero
Sponsor: WL Gore | Prof. Dyer Harris
2021 Fall Engineering Design

CELEBRATION

Congrats & Have a Wonderful Evening!

Unofficial After-Party Location
(if you’re not already there)