

2021 Fall Engineering Design

CELEBRATION

Awards Ceremony | Wednesday, December 15th



Welcoming Remarks



Dr. Ajay Prasad
Dept. Mechanical Engineering



Dr. Kristi Kiick
Dept. Biomedical Engineering



The Design Studio

Re-envisioning a Foundational Academic Makerspace



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

Year-Long

Concord High School, Team 2

"Lanternfly Trap with Effective Vineyard Application for Assembly by Students with Disabilities"

by Nicholas Henry, Miles Bliey

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

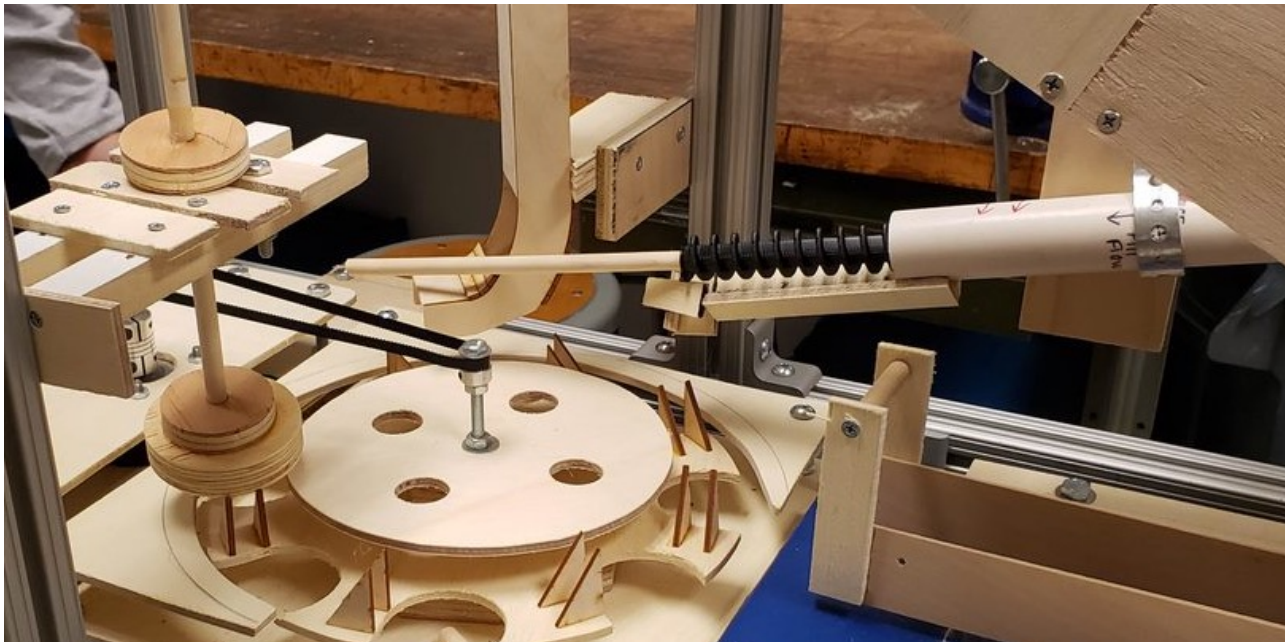
Team Members: Nick Benzi, Brian Fischer, Vea Hernandez, Alaysia Longmire, Claire Cho, Elias Navarro, Victor Riso, Nick Capriotti, Mike Naab

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

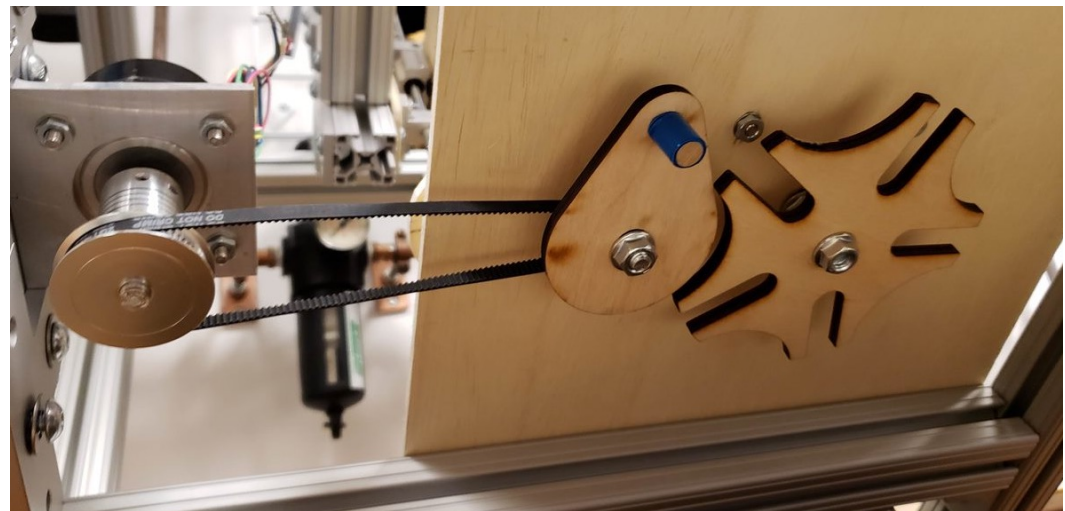
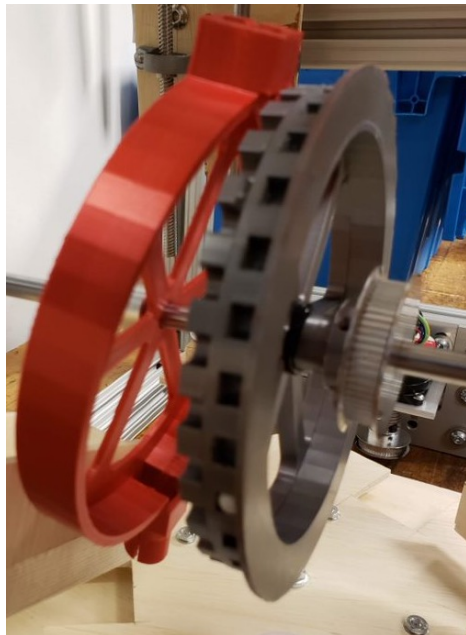
Team Members: Chris Bond, Mickayla Harris, Evan McCleary, Nikki Pilla, Nick Ulizio, Andrew Brillante, Brooke Demore, Timmy Hough, Caylin Payne, Holly Tobon

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

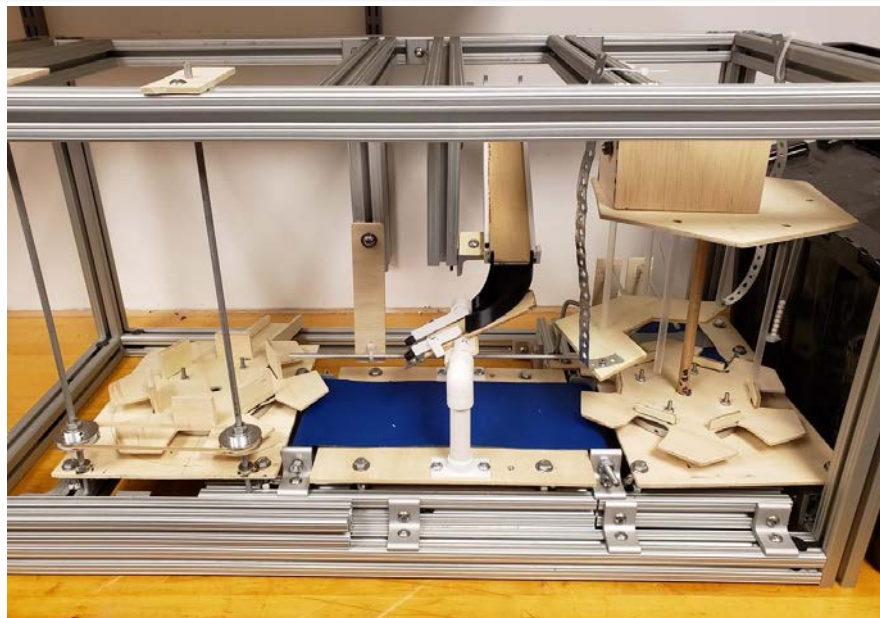
Team Members: Nick Benzi, Brian Fischer, Vea Hernandez, Alaysia Longmire, Claire Cho, Elias Navarro, Victor Riso, Nick Capriotti, Mike Naab

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 Percy
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 Hooper, 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

127: Crop scanning camera system for vertical indoor farming research

109: On-dem

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

ent System for

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

114: Battery c

Sponsor: UD Plant & Soil Sciences: Sparks Lab

elchair with pressure ulcer

Advisor: Prof. David Burris

124: Actuated wave paddle system for educational wave flume

prevention

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

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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Advisor: Prof. Ashutosh Khandha

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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

Cell & Tissue Award Presented by Prof. Julie Karand

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

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

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

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

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

400 : Formula SAE

Team Members: John Muller, Chase Lawrence, John Marcinizyn, Qasim Shaikh, Heqing Huang, Yujie Xi, Chet Hooper, 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

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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, Allysa Mae Tuano, Matthew Gardner, Kory Pringle | Sponsor: Siemens Healthcare Diagnostics | Advisor: Prof. Jim Glancey

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

Sponsor: Siemens Healthcare Diagnostics | Advisor: Prof. Jim Glancey

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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

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

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)

