

School of Science, Engineering, and Technology

**CAPSTONE DESIGN CONFERENCE**

SCHEDULE OF EVENTS

- 7:30 a.m. Breakfast (Gym, Capital Union Building)
- 8:00 a.m. Welcome: Dr. Rafic A. Bachnak, P.E.  
Director, School of Science, Engineering, and Technology
- 8:10 a.m. Featured Speaker: Joseph Emrich  
Branch General Manager, Johnson Controls Inc.
- 9:00 a.m. Student Presentations (Olmsted Building)
- Noon Lunch (CUB Gymnasium)
- 12:45 p.m. Featured Speaker: Daniel J. Fichtner, P.E.  
Executive Vice President, Providence Engineering
- 1:30 PM Student Project Exhibition and Demonstrations  
(Educational Activities Building and Engineering Laboratory)
- 3:30 PM Order of the Engineer Ring Ceremony (EAB 102)
- 4:00 PM Awards Ceremony (EAB 102)

## **Civil Engineering Capstone Design Projects**

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### **Project: Student Enrichment Center (SEC) – Student Perspective**

Sponsor: Bohlin Cywinski Jackson-Architecture Planning Interior Design

Faculty Advisors: Dr. Shashi Marikunte and Dr. Sofia Vidalis

Group #1: B&F Engineering

Group Leader: Robert Daniels

Members: Mathew Arnold, Jonathon Cunningham, Lindsay Klotz, Ian Selock, Julie Vaccaro, Cody Wood

Group #2 Engineering Innovations

Group Leader: Mohamed Zainal

Members: Kerolos Azer, James Bilger, Rudjery Jean Baptiste, Jose Lopez Rocha, Victor Medina, Scott Mojena

Group #3: Nittany Engineering Corporation

Group Leader: Graham Gedman

Members: Steven Fenice, James Harchar, Logan Mack, Ryan Potuck, Jesse O'Connell, Carlos Pacheco

Group #4: Team Global Eco Fresh

Group Leader: Tanner Hamman

Members: Mohamed Dora, Zachary Gregory, Joshua Myers, Josiah Owhe, Miheer Patel, Henry Wassinger

Group # 5: S<sup>3</sup> – Simple, Straight Forward Solutions

Group Leader: Kyle Purcell

Members: Gregory Cooper, Rieley Loch, Patrick Lumsden, Wesley Ovens, Kristin Peckman, Barry Porter

### **Project: American Society of Civil Engineers (ASCE) Concrete Canoe**

Faculty Advisors: Dr. Shashi Marikunte and Dr. Sofia Vidalis

Group Leader: Jonathan Raimondo

Members: Alexander Buterbaugh, Spencer St. Clair, Jean Roman-Melendez, Harshil Patel

## **Structural Design and Construction Engineering Technology Capstone Design Projects**

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### **Project: Penn State Altoona Adler Athletic Complex Addition**

Sponsor: Penn State Altoona

Faculty Advisors: Dr. Joseph Cecere and Dr. Grady Mathews IV

#### **Group #1**

Structural Team: Marc Freshley, Devan Gillaird, Benjamin Harvey, Zachary Spaulding

Construction Team: Austin Achenbach, Devon Gerhart, Wesley Kuczawa, Devin Taylor

#### **Group #2**

Structural Team: Marc Freshley, Devan Gillaird

Construction Team: Eric Doll, Chad Faraday, James Kinsley, Mark Paradise

#### **Group #3**

Structural Team: Benjamin Harvey, Zachary Spaulding

Construction Team: Chris Spittle, Derek Stauffer, Chuck Stodter

## **Civil Engineering (Environmental) Capstone Design Projects**

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### **Project: Middletown Drinking Water Treatment Plant Design**

Faculty Advisor: Dr. Yuefeng Xie

Group #1

Members: Caleb Krauter, Gabriel Martin

Group #2

Members: Amber Lefever, Chiara Orsini

Group #3

Members: Steven Pickel, Zachary Steckler

## **Computer Science Capstone Design Projects**

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### **Project: LionHub**

Group Members: Brandon Davis, John Deebel, Clarence LaShier, Ngan Nguyen

Faculty Advisors: Dr. Sukmoon Chang & Donna Howard

### **Project: The Gallery Walk**

Group Members: Chris Enck, Tom Dippolito, Naiqiang Lin, Nick Traini

Faculty Advisor: Dr. Brian Adams

### **Project: Bot!Battle! – Game Display Module and Testing Mode**

Group Members: Sawyer Brown, Josiah Hertzler, Thomas Hoffman, Jack McFann, Taha Siddique

Faculty Advisor: Dr. Jeremy Blum

### **Project: Bot!Battle! Web Application**

Group Members: Hanibal Atnafu, Jonathan Dunn, Michael Good, Thomas Singleton

Faculty Advisor: Dr. Jeremy Blum

### **Project: Bot!Battle! Management Platform and Evaluation Program**

Group Members: Brandon Cercone, Nathan Dudding, Wei Hsien Lo, Joshua Riojas

Faculty Advisor: Dr. Jeremy Blum

## **Electrical Engineering and Technology Capstone Design Projects**

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### **Project: Pressure Sensitive Train Control System**

Group: Nicholas Arber

Faculty Advisor: Dr. Scott van Tonningen

### **Project: Automotive RF Connector Analysis and Design**

Sponsor: TE Connectivity

Group: Emilio Cuesta

Faculty Advisor: Dr. Mohammad-Reza Tofighi

### **Project: Audio Gateway Interface for DTangle Acoustic Source Separator**

Sponsor: Speech Technology and Applied Research Corporation

Group: Joseph Cin

External Advisor: Dr. Richard Goldhor

Faculty Advisor: Dr. Aldo Morales

### **Project: TE Connectivity's Integral Current Sensor for Wi-Fi Relay**

Sponsor: TE Connectivity

Group: Norbert Rodriguez, Tyler Royer

Faculty Advisor: Dr. Scott van Tonningen

### **Project: Smart Keyboard**

Group: Charles Scheick, Mruga Shah

Faculty Advisor: Dr. Seth Wolpert

### **Project: Smart Water Meter**

Group: Gregory Muraya, Phuc Tat

Faculty Advisor: Dr. Robert Gray

### **Project: Parking Guidance System**

Group: Huy Bui, Mayursinh Raj

Faculty Advisor: Dr. Aldo Morales

### **Project: Spaceship Simulator**

Group: Gregory Brubaker

Faculty Advisor: Dr. Seth Wolpert

Project: Smart Load Management System

Group: William Keller, William Manigat

Faculty Advisor: Dr. Peter Idowu

**Project: Full Grain Brewer's Helper**

Group: Juan Martinez-Mantilla, Jeremiah Swanger

Faculty Advisor: Dr. Robert Gray

**Project: Wind Power Eliminator**

Sponsor: PPL Electric Utilities

Group: Thien Pham, Matheus Sousa

Faculty Advisor: Dr. Peter Idowu

**Project: Body Heat Charger**

Group: Colt Stuckey

Faculty Advisor: Dr. Seth Wolpert

**Project: Variable Speed Industrial Mixer**

Group: Adam Campbell, Michael Greco

Faculty Advisor: Dr. Seth Wolpert

**Project: Arduino-Stabilized Model Rocket (A-SMR)**

Group: Andy Gomez, Cody Readinger

Faculty Advisor: AB Shafaye

**Project: Energy Efficient and Sustainable Smartlet**

Group: Siang Lian, Chad Weiss

Faculty Advisor: Dr. Aldo Morales

**Project: Solar Powered Water Irrigation System**

Group: Drew Niper, Devan Vandervoort

Faculty Advisor: Dr. Nashwa Elaraby

**Project: Long Distance Solar Powered Water Pump**

Group: Chiban Sankari, Eduard Ivashchuk

Faculty Advisor: Dr. Seth Wolpert

**Project: Adaptive Traffic Light System**

Group: Richard Davidson, Ross Seilhammer

Faculty Advisor: Dr. Brian Adams

**Project: The Magnus Effect Drone**

Group: Daniel Hubbard  
Faculty Advisor: Dr. Seth Wolpert

**Project: Solar Lawnmower**

Group: Armand Cheeks, Fahd Sallit  
Faculty Advisor: Dr. Scott van Tonningen



## **Mechanical Engineering and Technology Capstone Design Projects**

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### **Project: Vertical Axis Portable Wind Turbine - Turbine Component**

Group: Alexander Conner, Norman LeDoux, Nicholas Ray

Faculty Advisor: Dr. Esfakur Rahman

### **Project: Vertical Axis Portable Wind Turbine - Portability Component**

Group: Christopher Demby, Joseph Masiewicz, Mohammed Salamah

Faculty Advisor: Dr. Esfakur Rahman

### **Project: Formula SAE - Powertrain**

Group: George Bondarev, Matthew D'Amicantonio, Mikhail Hrizhynku

Faculty Advisor: Dr. Esfakur Rahman

### **Project: Formula SAE - Suspension and Vehicle Dynamics**

Group: Nathaniel Golshan, Luke Hull, Aaron Lonie, Hunter Shank

Faculty Advisor: Dr. Esfakur Rahman

### **Project: Formula SAE – Chassis**

Group: Tinu Abraham, Alvaro Cortez, Rikin Patel, Michael Smith

Faculty Advisor: Dr. Esfakur Rahman

### **Project: Ultrasonic Dual-Element Corrosion Sensor Design**

Sponsor: Sensors Network Inc.

Group: Zachary Anderson, Alexander Flattery, Vishnu Gopalakrishnan, Aaron Moores

Faculty Advisor: Dr. Harris Imadojemu

### **Project: Automated Home Brewing System**

Group: Samuel Hall, Zachary Merisotis, Grant Miller, Destin Shimmel

Faculty Advisor: Dr. Ma'Moun Abu-Ayyad

### **Project: Design of an Automated Mobile Biodiesel Mixing System**

Group: Benjamin Cohen, Nicky Miller, Dejan Raic

Faculty Advisor: Dr. Ma'Moun Abu-Ayyad

### **Project: Hirschmann's Crane Cable Guide**

Sponsor: Hirschmann Belden

Group: Ryan Fong Sam, Cole Johnson, Zachary Kochanek, Lester Miller

Faculty Advisor: Dr. Ma'Moun Abu-Ayyad

**Project: Length Correction Equations of the Crane Cable**

Sponsor: Hirschmann Belden

Group: Ryan Heller, Kegan Minney, Grason Mullendore, William Sabold

Faculty Advisor: Dr. Ma'Moun Abu-Ayyad

**Project: Crane Model Design**

Sponsor: Hirschmann Belden

Group: Juan Diaz, Julio Guardado-Rubio, Thuan Nguyen, Brandilyn Ries

Faculty Advisor: Dr. Ma'Moun Abu-Ayyad

**Project: Remote Mechanized Harness Release\***

Sponsor: TE Connectivity

Group: Juan Aguirre, Mark Brazee, Alessandro DeBernardo, Edgar Makimoto

Faculty Advisors: Dr. Ola Rashwan and Dr. Scott Van Tonningen

\*Combined Project with Electrical Engineering and Technology

**Project: 3D Printer Filament Extrusion and Spooling**

Sponsor: Penn State Harrisburg

Group: Abdelmagid Abdelmagid, Georgina Hatch, Keith Rosenberger, Shawn Perkiss

Faculty Advisor: Dr. Ola Rashwan

**Project: Analysis of Roof Color on Ambient Environment**

Sponsor: Carlisle Construction Materials

Group: Tomy Abdulrazaq, Travis Fenyves, Rainaire Hansford, Tesfaye Teruneh

Faculty Advisor: Dr. Ola Rashwan

**Project: Micro - Electrode 3D printer: A University Park Collaboration**

Sponsor: Penn State University Park

Group: Benjamin Grimme, Jonathan Hetherington, Melissa Krieger, Zachary Patterson

Faculty Advisor: Dr. Ola Rashwan

**Project: Vacuum Thermoforming Machine**

Group: Jonathan Riska

Faculty Advisor: Dr. Ola Rashwan

**Project: Modelling of Proximal Femur Plate in Fracture Fixation**

Sponsor: Penn State Hershey Medical Center

Group: Alexander Abild, Tyler Cook, Tyler Gibson, Jeremy Yingling

Faculty Advisor: Greg Lewis

**Project: Proximal Humeral Fracture: Locking Plate Model Analysis**

Sponsor: Penn State Hershey Medical Center

Group: Richard Brown, John DePaul

Faculty Advisor: Greg Lewis

**Project: Small Form Factor SLA Vat and Stage Assembly**

Sponsor: TE Connectivity

Group: Christopher Massey, Bashir Mohammed, Mahir Tiro

Faculty Advisor: Dr. Amit Banerjee

**Project: New Hand Crimp Tool**

Sponsor: TE Connectivity

Group: John Cataldo, Mark Fyock, Brandon Scheibley, Joshua Scheibley

Faculty Advisor: Dr. Amit Banerjee

**Project: Kinetic Energy Phonecase**

Group: Dean Harmon, Jared Imler, Tyler Vilga

Faculty Advisor: Dr. Amit Banerjee

**Project: Air Bag Car Lift**

Group: Chad Anderson, Carter Rankin

Faculty Advisor: Dr. Amit Banerjee

**Project: Emtrol-Buell Cyclone Redesign**

Sponsor: Emtrol-Buell Technologies

Group: Christopher Gieniec, Ninan Mathew, Brian Ton

Faculty Advisor: Dr. Brian Maicke

**Project: Metal Roof Coil Control Apparatus**

Sponsor: M.H. Eby, Inc.

Group: Dylan Garber, Bryan Hostetter, Anson McConnell, Brian Robison, Adam Williams

Faculty Advisor: Dan Massey

**Project: Dune Buggy**

Group: Alexander Chik, James Gladhill, Jacob Kreider, Derek Sell, Christopher Shipman

Faculty Advisor: Dan Massey

**Project: Power Folding Side Steps for F-350**

Group: Dean Bernazzoli, David Crowder, Justin Lewis

Faculty Advisor: Dan Massey

**Project: Log Splitter**

Sponsor: Dan Massey

Group: Randy Day, Erinik Halliday, Joshua Johnson, Luke Stouffer

Faculty Advisor: Dan Massey