The University of Iowa

Department of Mechanical and Industrial Engineering

Senior Project Presentations
Mechanical Engineering Design Project
Program for Enhanced Design Experience
Virtual International Project Team
Industrial Engineering Design Project

Thursday, May 7, 2015
College of Engineering, Seamans Center
Reception 5:00PM - 6:00PM; 2nd Floor Lobby/John Deere Plaza, Seamans Center http://maps.uiowa.edu/sc

Presentations 6:00PM; 1505 SC, 2229 SC, 3026 SC, 3315 SC, 3321 SC, 3505 SC, 4030 SC
Project Advisors: Andrew Kusiak, Dan Mineck, Albert Ratner, Tom Schnell

Room 1505 SC
Mechanical Engineering Design Project 1

Time: 6:00–6:25 PM
Gather Again Wrap Tablet Arm – Team L
Sponsor: Allsteel
Faculty Advisor: Ibrahim Ozbolat
Team members: Michael Smith, Edward Dunkel, Jack Forrest

Time: 6:25–6:50 PM
Thermovasc Remodeling – Team H
Sponsor: University of Iowa Hospitals and Clinics
Faculty Advisor: Ibrahim Ozbolat
Team members: Eric Lindsey, Samuel Song, Brendan Smolen

Time: 6:50–7:15 PM
Body Armor Optimization – Team G
Sponsor: Center for Computer Aided Design: Virtual Soldier Research
Faculty Advisor: Tim Marler
Team members: David Bein, Brandon Vogl, Eric Gould

Time: 7:15–7:40 PM
Innovation Project: Smart Water Label – Team Q
Sponsor: Innovation Project
Faculty Advisor: Kamran Samani
Team members: Charles Suhajda, Sean Fleming

Time: 7:40–8:05 PM
UIHC Rad Oncology Rotating Shield Brachytherapy – Team F
Sponsor: University of Iowa Hospitals and Clinics
Faculty Advisor: Tim Marler
Team members: Robert MacNamara, Michael McAndrews, Douglas Kerr

Room 2229 SC
Mechanical Engineering Design Project 2
Judges: K. Samani, D. Litwiller, M. Mason, S. Putnam, K. Sigman

Time: 6:00–6:25 PM
Sidewalk Shovel – Team C
Sponsor: Midwest Unique Products
Faculty Advisor: Albert Ratner
Team members: Oscar Brophy, Brandon Griffin, Jordan Rieckenberg

Time: 6:25–6:50 PM
Midwest Unique Products – Bug Catcher - Team E
Sponsor: Midwest Unique Products
Faculty Advisor: Justin Garvin
Team members: Cody Hardy, Tracy Zurcher, Megan Travis

Time: 6:50–7:15 PM
Steering Around the Competition – Team S
Sponsor: UISAE Min-Baja Club
Faculty Advisor: Kamran Samani
Team members: Austin Williams

Time: 7:15–7:40 PM
Integrating Height Adjustability to Stride Benching System – Team M
Sponsor: Allsteel
Faculty Advisor: Hiroyuki Sugiyama
Team members: Alexander Ruwe, Cody Edwards, Zachary Lyle

Time: 7:40–8:05 PM
Deere 2: Paint Rework Booth – Team P
Sponsor: John Deere
Faculty Advisor: Fred Stern
Team members: Samantha Kerkove, Cheng Zhang, Jacob Ballweg
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<thead>
<tr>
<th>Room 3505 SC</th>
<th>Mechanical Engineering Design Project 3</th>
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<tbody>
<tr>
<td>Judges: J. Garvin, D. Richmann, R. Wilcoxon, A. West, R. Legge, S. Greidanus</td>
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<tr>
<td>Time: 6:00–6:25 PM</td>
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<tr>
<td><strong>Solight – Quantifying &amp; Moderating Solar Thermal Panel Heat Loss – Team I</strong></td>
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<tr>
<td><strong>Sponsor:</strong> Solight Solar Inc.</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Udaykumar</td>
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<tr>
<td><strong>Team members:</strong> Alexander Denny, Yixin Chen, Michael Werner</td>
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<tr>
<td>Time: 6:25–6:50 PM</td>
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<tr>
<td><strong>Minimum Sustainment Rate Prediction Model Using 3D Software – Team D</strong></td>
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<tr>
<td><strong>Sponsor:</strong> US Army</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Justin Garvin</td>
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<tr>
<td><strong>Team members:</strong> Matt Sambo, Thomas Spiekerman, Drew O’Halloran</td>
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<tr>
<td>Time: 6:50–7:15 PM</td>
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<td><strong>Concept for a Long Range Supersonic Drone – Team T</strong></td>
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<td><strong>Sponsor:</strong> AIAA</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Albert Ratner</td>
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<tr>
<td><strong>Team members:</strong> Timothy Wichert</td>
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<tr>
<td>Time: 7:15–7:40 PM</td>
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<tr>
<td><strong>Conformal Coating Impact on Ball Array Failures – Team A</strong></td>
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<td><strong>Sponsor:</strong> Rockwell Collins</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Sharif Rahman</td>
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<tr>
<td><strong>Team members:</strong> Kenneth Vierck, Jason Fox, Logan Derby</td>
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<tr>
<td>Time: 7:40–8:05 PM</td>
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<tr>
<td><strong>Thermal Test Facility for Testing Electronically Scanned Array Antennas – Team B</strong></td>
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<td><strong>Sponsor:</strong> Rockwell Collins</td>
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<tr>
<td><strong>Faculty Advisor:</strong> James Buchholz</td>
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<tr>
<td><strong>Team members:</strong> Jeffrey Von Arb, Andrew Sterling, Adam Westbrook, Ryan Benesch</td>
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<tr>
<th>Room 3026 SC</th>
<th>Mechanical Engineering Design Project 4</th>
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<tr>
<td>Time: 6:00–6:25 PM</td>
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<tr>
<td><strong>University of Northern Iowa – Team O</strong></td>
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<tr>
<td><strong>Sponsor:</strong> DLR Group</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Eric Foresman</td>
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<tr>
<td><strong>Team members:</strong> Lawrence LeBlanc, Tyler Nemmers, Kayley Lain, Ryan Christensen</td>
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<tr>
<td>Time: 6:25–6:50 PM</td>
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<tr>
<td><strong>Solar Panel Exhibit Design – Team J</strong></td>
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<tr>
<td><strong>Sponsor:</strong> Alliant Energy</td>
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<tr>
<td><strong>Faculty Advisor:</strong> James Buchholz</td>
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<tr>
<td><strong>Team members:</strong> Kevin Brawley, Benjamin Stelter, Dexter Bieri, Jacob Kinter</td>
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<tr>
<td>Time: 6:50–7:15 PM</td>
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<tr>
<td><strong>Analysis &amp; Application for Heat Recovery System for Alliant Energy – Team K</strong></td>
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<td><strong>Sponsor:</strong> Alliant Energy</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Justin Garvin</td>
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<tr>
<td><strong>Team members:</strong> John Adair, Dustin Heddens, John Ryberg</td>
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<tr>
<td>Time: 7:15–7:40 PM</td>
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<tr>
<td><strong>YALI Education Center – Team N</strong></td>
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<tr>
<td><strong>Sponsor:</strong> DLR Group</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Udaykumar</td>
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<tr>
<td><strong>Team members:</strong> Cameron Frossard, Edwardo Galvan, Tyler Pirri, Codie Weeding, Samuel Welu</td>
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<td>Time: 7:40–8:05 PM</td>
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<td><strong>IP3 Innovation Project Portable Renewable Energy Generator – Team R</strong></td>
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<td><strong>Sponsor:</strong> University of Iowa</td>
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<tr>
<td><strong>Faculty Advisor:</strong> Craig Just</td>
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<tr>
<td><strong>Team members:</strong> Steven Czechowski, Michael Bottiglieri, Andrew Christ</td>
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Room 4030 SC

Program for Enhanced Design Experience
Judges: A. Ratner, D. Mineck, K. Wagner

Time: 6:00–6:25 PM

John Deere 844K-II Series 4WD Loader Redesign of Sheet Metal Enclosure – Group B
Sponsor: John Deere
Lead Engineers: Eric Lee, Bradley Mann, Jacob Walleser
Team Members: Allison Kindig, Ashley Tuchscherer, Courtney Paulsen, Theodore Hill

Time: 6:25–6:50 PM

Armrest Adjustment Redesign for the GP Series John Deere Motor Grader - Group C
Sponsor: John Deere
Lead Engineers: Luke Wallace
Team Members: Matthew Janechek, Alexander Matos, Aaron Mueller, Mark Stocker

Time: 6:50–7:15 PM

HG6000 Screen Hoist Option – Group D
Sponsor: Vermeer Recycling & Forestry
Lead Engineers: Mark McClellan
Team Members: Corey Harthoorn, Robert Johnson, Trevor Lough, David Goldman

Time: 7:15–7:40 PM

John Deere Skid Steer Bucket Design – Group A
Sponsor: John Deere
Lead Engineers: Nathan Laws, Sean Mairet
Team Members: Neal Bunt, Abhinav Sharma, Bryan Peterson, Derrick Nelson

Time: 7:40–8:15 PM

VIPT Optimization of University of Iowa Chilled Water System
Sponsor: University of Iowa Facilities Management
Lead Engineers: Chuck Weno
Team members: Rocio Ayala, Kipp Caputo, Anthony Engelbart, Fabijan Gabrek, Nicholas Gerwe, Samantha Gordon, John McCullough, Megan Philipp
Room 3315 SC
Industrial Engineering Design Project 1
Judges: B. Westlake, T. Huber

Time: 6:00–6:25 PM
Product Shipping Costs
Sponsor: Rockwell Collins
Team members: Garrett Brown, Weiwei Gu, Joseph Petramale

Time: 6:25–6:50 PM
Line 21 Simplification
Sponsor: Iowa City Proctor and Gamble
Team members: Kyle Autschbach, Justin Cook, Patrick Stanton

Time: 6:50–7:15 PM
Line 23 Material Utilization and Downtime Reduction
Sponsor: Iowa City Proctor and Gamble
Team members: Conner Kester, Ryan Oakes, Jesse Poznikowich

Time: 7:15–7:40 PM
Lot Sizing Strategy for Finished Good Procurement
Sponsor: Rockwell Collins
Team members: John Derry, Grant Lammers, Matthew Lerman, Brian McClurg

Time: 7:40–8:05 PM
Four-to-Three Line Efficiency Project
Sponsor: Heinz Quality Chef Foods
Team members: Colby Hawker, Jonathan Sneddon, Elliott Soemadi, Trace Yuhas

Room 3321 SC
Industrial Engineering Design Project 2
Judges: L. Allendorf, N. Quellhorst

Time: 6:00–6:25 PM
Improve Chemical/Supply Inventory and Recording Process
Sponsor: Rockwell Collins
Team members: Taylor Best, Mackenzie Hodges, Lauren Taylor

Time: 6:25–6:50 PM
Global DC Tester Ergonomics and Connection Time Improvement
Sponsor: Schneider Electric
Team members: Andres Estenssoro Seng, Anthony Johnson, Alex Karwath, Jonathan Lewis

Time: 6:50–7:15 PM
Emergency Department Patient Volume and Arrival Patterns
Sponsor: University of Iowa Hospital and Clinics
Team members: Zach Henningsen, Nicholas Mazzenga, Frank Ross, Kalliene Williams

Time: 7:15–7:40 PM
Lighted Sign Expansion
Sponsor: Zephyr Printing and Design
Team members: Neil Armstrong

Time: 7:40–8:05 PM
Ergonomics Issued for Aging Workforce
Sponsor: John Deere
Team members: Konnor Scanlon, Jeremy Zagrakalis, John Zanussi
Project Sponsors and Lead Engineers

**MEDP Projects**

**Alliant Energy**
- Pat Kelly
- Larry Harder
- Dave Rohrszen

**Allsteel**
- Greg Ferris
- Kate Kamm
- Sammy Abusada
- Seth Newberry

**Center for Computer Aided Design**
- Tim Marler

**DLR Group**
- Nicholas Hansen

**John Deere**
- Paul Stern
- Luke Hubbard

**Midwest Unique Products**
- Scott Putnam
- Mick Mason

**Rockwell Collins**
- Ross Wilcoxon
- David Hillman
- Jim West

**SAE Mini Baja**
- Joel Price

**Solight Solar Inc.**
- Eric Hoover

**US Army**
- Olga Jennings
- Eric Hoover

**U of Iowa**
- Bradley Dixon
- Neelima Katragunta

**University of Iowa Hospital & Clinic’s**
- Randy Fry
- Blake Dirksen

**IEDP Projects**

**Heinz**
- Bennet Masden
- Brian Baculik

**John Deere**
- Paul Stern
- Paul Hernandez
- Robert Beardsley

**Proctor and Gamble**
- Lendell Harris
- Cassie Forsman

**Rockwell Collins**
- Andrew Knopp
- Ryan Oelmann
- Steve Carnesi

**Schneider Electric**
- Gabriel Gutierrez

**University of Iowa Hospitals and Clinics**
- Randy Fry

**Zephyr Printing and Design**
- Joel Seiberling

**PEDE Projects**

**John Deere**
- Nathan Laws
- Sean Mairet
- Eric Lee
- Bradley Mann
- Jacob Walleser
- Luke Wallace

**Vermeer**
- Mark McClellan
- Jeff Ebersole

**VIPT Project**

**U of Iowa**
- Chuck Weno

**Design Innovation and Interaction Board**

Susan Chrysler, University of Iowa. NADS
- William Haman, Iowa Energy Center
- Daniel Hanson, Rock Island Arsenal
- Andrew Lee, Florida Power and Light
- Gregg Machetta, Deere & Co.
- Michael P. Maley, Hydro Green Energy
- Tim Marler, University of Iowa, CCAD
- Jarrod D. Moss, Caterpillar, Inc.
- Joe Patten, MainStream Holding, LLC
- P. Russell Price, PRVN Consultants
- Derrick Richmann, Rockwell Collins
- Thomas Surma, Deere & Co.
- Ross Wilcoxon, Rockwell Collins
- David Wu, Rockwell Collins