

**MAY 3, 2008**

## **Richard J. Fasenmyer ENGINEERING DESIGN CONFERENCE**

### **SCHEDULE OF EVENTS**

7:30	Refreshments (Clark Café)
8:00-Noon	Senior Presentations. (Half-hour sessions including Q&A)
11:30-Noon	Class Pictures: ECET-11:30, ECSE-11:35, ME-11:40, MET-11:45, PLET - 12:00 (Main Staircase Steps)
12:15-12:45	Keynote Speaker (Black Conference Center—REDC 180)
12:45-2:00	Lunch (Clark Café)

### **KEYNOTE SPEAKER**

#### **H. Allan Kidd—Dresser Rand**

H. Allan Kidd joined Dresser-Rand in 1978 as a Design Engineer responsible for design and commissioning of gas turbine driven hydrocarbon compressors. By 2000 he had become Director, Engineering Development, with responsibilities for various disciplines including worldwide Research and Development, Core Technologies (Metallurgy, Acoustics, Rotordynamics, Aerodynamics, Thermodynamics, Solid Mechanics), and Business Process Design Automation.



Allan is currently Director, Emerging Technologies and Worldwide Engineering Services. In this capacity Allan is responsible for technology acquisitions, launching emerging technologies with a five- to ten-year horizon, and supporting university programs.

Allan has authored numerous publications for ASME and Texas A&M Turbosymposium on the subjects of controls, instrumentation, vibration system design, process design and control, and regulatory compliance through intelligent design, all of which were focused on gas turbine applications in a hydrocarbon industry. He has also contributed to a number of white papers and articles on the subject of business process automation and advanced pumping and compression systems.

Allan is an ASME Fellow and has served as Chair of the Board of Directors for the ASME Gas Turbine Institute. Graduating from Northeastern University in 1971 with a BSEE, Allan continued with graduate studies at Northeastern and Penn State Universities.

### **ABOUT THE CONFERENCE**

The Richard J. Fasenmyer Conference showcases the results of year-long senior capstone projects conducted by students within the School of Engineering. The projects are conducted by student teams, supervised and managed by the students and guided by their faculty advisers. In many cases the projects address applied problems posed by industrial sponsors.

In 2005 the conference was named to honor the legacy of Richard J. Fasenmyer. Mr. Fasenmyer was named an Alumni Fellow and Distinguished Alumnus of the University. He was the first alumnus of Penn State Behrend to donate \$1 million to the college.



## Special Session for Senior Design Sponsors

11:00 AM  
REDC 002

Interested in Sponsoring a Senior Project? Come to this information session for new and potential project sponsors. Presented by Ralph Ford, Director, School of Engineering and Michael Lobaugh, Faculty Coordinator, Fasenmyer Engineering Design Conference.

## Electrical and Computer Engineering Technology

9:00 AM  
REDC 105

### ***Investigation of LED Technology for Surgical Lighting***

Sponsor: Nuvo Surgical  
Brandon Balwick, Evan Bell  
Faculty Adviser: Ronald Krahe

9:30 AM  
REDC 105

### ***Automated Production Tester for Surgical Light***

Sponsor: Nuvo Surgical  
Adam Eccles, Charles Hickernell Jr.  
Faculty Adviser: Ronald Krahe

10:00 AM  
REDC 105

### ***Foot Dynamometer***

Shane Scott, Jason Huffman  
Faculty Adviser: Robert Gray

10:30 AM  
REDC 105

### ***PLC Controlled Pneumatic Four Axis Automation Affecter***

Scott Beach, Russell Mogel  
Faculty Adviser: Roger Kuntz

11:00 AM  
REDC 105

### ***RFID Reader Interface Device***

Sponsor: Penn State Behrend RFID Center  
Max Kiehlmeier, Kurt Wolbert  
Faculty Adviser: David Loker

## Electrical, Computer and Software Engineering

8:30 AM  
REDC 101

### ***Marine Engine Control Unit for Increased Diesel Engine Safety***

Sponsor: General Electric Transportation  
Jacob Carter, Stephen Estok, Matthew Frank,  
Jonathan Schweichler  
Faculty Adviser: Xuping Xu

9:00 AM  
REDC 101

### ***Voltage Control for Locomotives***

Sponsor: General Electric Transportation  
Joseph Ferko, Todd Guarnieri, Christopher Rekiel  
Faculty Adviser: Xuping Xu

9:00 AM  
REDC 104

### ***Real-time Tracking of Inventory with RFID & GPS***

Sponsor: Penn State Behrend RFID Center  
James Jones Jr., Christopher Kovach, Joseph Warner,  
Steven Widdowson  
Faculty Adviser: Kathleen Muhonen

9:30 AM  
REDC 101

### ***Medication Dispensing Educational Utility***

Sponsor: Behrend Nursing Program  
Derek Challingsworth, Gerald Kinthead,  
Peter Santimauro, Michael Wood  
Faculty Adviser: Wen-Li Wang

9:30 AM  
REDC 104

### ***Automatic Lawn Sprinkler System***

Steven Leicher, Benjamin Ranayhossaini,  
Anthony Spoto  
Faculty Adviser: Shouling He

10:00 AM  
REDC 101

### ***Inventory Inquiry Management System***

Sponsor: Eriez Magnetics  
Tony Hill, Michael Schumaker  
Faculty Adviser: Wen-Li Wang

10:00 AM  
REDC 104

### ***Air Intake Cooler for Performance Automotive Applications***

Sponsor: Volt Vision  
Cory Pompelia, David Kostanich, Benjamin Winfield  
Faculty Adviser: Vibhuti Davé

10:30 AM  
REDC 101

### ***Anthrax Logs Monitoring System***

Sponsor: Northrop Grumman  
Matthew Baker, Geoffrey Geisel  
Faculty Adviser: Simon Fan

10:30 AM  
REDC 104

### ***3-D Printer for Rapid Prototyping***

Sponsor: Spinworks  
Nicholas Goss, Israel Schultz, Jesse Swanson  
Faculty Adviser: Chris Coulston

11:00 AM  
REDC 101

### ***Enabling Information Supply Chains Over RFID Reader Networks***

Sponsor: DNS Software  
Jarrod Cook, Daniel Russo, Ken Virostek  
Faculty Adviser: Simon Fan

11:00 AM  
REDC 104

### ***Comparative Analysis of Oil Quality Monitoring Circuits***

Sponsor: Impact Technology  
Dustin Fairchild, Joseph Sepich  
Faculty Adviser: Ralph Ford

# Mechanical Engineering

8:30 AM  
REDC 201

***Rectifier Panels Side Shield Design***  
Sponsor: General Electric Transportation  
Huseyin Gitmez, Mark Reith, Joseph Sienicki,  
Jarrod Wheeler  
Faculty Adviser: Russell Warley

8:30 AM  
REDC 204

***Crashworthy Event Recorder Solid State Memory Device***  
Sponsor: General Electric Transportation  
Neil Day, Daniel Mauck, Luke Reynolds,  
Joseph Shaffer  
Faculty Adviser: Dean Lewis

9:00 AM  
REDC 201

***Lunar Carnot Engine***  
Sponsor: School of Science  
Carl Capen, Logan Flaherty, Steve Reynolds,  
Kyle McKerrow  
Faculty Adviser: Russell Warley

9:00 AM  
REDC 204

***Track Isolator***  
Sponsor: Corry Rubber  
Daryl Burek, Ivan Loker, Tyler Richard, Travis Simpson  
Faculty Adviser: Dean Lewis

9:30 AM  
REDC 201

***Kazakhstan Locomotive Project***  
Sponsor: General Electric Transportation  
Eric Henry, Shawn Schultz, Nicholas Sherman,  
Keith Steward  
Faculty Adviser: Amir Khalilollahi

9:30 AM  
REDC 204

***Wheelchair Safety Brake***  
Sponsor: Dr. Gertrude A. Barber National Institute  
Kristopher Barnes, Clint Morrison, Eric Price,  
Gary Singleton  
Faculty Adviser: Oladipo Onipede

10:00 AM  
REDC 201

***Automated Jig Design***  
Sponsor: Honda of America Mfg.  
Patrick Bridenbecker, Andrew Root, Travis Sub,  
Wayne White  
Faculty Adviser: Yi Wu

10:00 AM  
REDC 204

***Crankshaft Forging Carousel***  
Sponsor: Cummins Engine Company, Inc.  
Gregory Hofmann, George Varghese, Mitchell Reckner,  
Jennifer Robinson  
Faculty Adviser: Oladipo Onipede

10:30 AM  
REDC 201

***Bin Vibrator Thermal Standoff Design***  
Sponsor: Eriez Magnetics  
Robert Cook, Matthew Johnson, Sean Mahoney  
Faculty Adviser: James Sonnenmeier

10:30 AM  
REDC 204

***Web Handling & Robotics for Process Automation***  
Sponsor: Pittsburgh Plastics Mfg.  
Benjamin Newell, David Tullai, Michael Vollmer,  
John Watkins  
Faculty Adviser: John T. Roth

11:00 AM  
REDC 201

***SAE Supermileage Vehicle Shell***  
Gary Cygan, John Jackson,  
Daniel Zarnick, Matthew Zirnsak  
Faculty Adviser: William Lasher

11:00 AM  
REDC 204

***Diesel Engine Lash Reducer***  
Sponsor: General Electric Transportation  
Joshua Deslauriers, Jasmine Lee, James Strand  
Faculty Adviser: John T. Roth

# Mechanical Engineering Technology

9:00 AM  
REDC 106

***Facility Heat and Air Flow Analysis***  
Sponsor: JTM Bakery  
Bruce Tomczak, Justin Patton, Michael Mahalik  
Faculty Adviser: Robert Edwards

9:00 AM  
REDC 107

***Rapid Prototyping Ceramic Materials Study (CLOSED)***  
Brian Benini, Brett Englert, Matthew Walker  
Faculty Adviser: Michael Lobaugh, Robert Michael

9:30 AM  
REDC 106

***Dual Mode Small Engine Dynamometer***  
Sponsor: Society of Automotive Engineers  
Mark Bryant, Matthew Lucke  
Faculty Adviser: Edward Evans Jr.

9:30 AM  
REDC 107

***Erie Plug Welding Alternative Study***  
Sponsor: Eriez Magnetics  
Adam McGarvey, Michael Haskins, Anthony Gianni  
Faculty Adviser: Michael Lobaugh

10:00 AM  
REDC 106

***Compressor Pedestal Design Study***  
Sponsor: Dresser Rand  
Richard Yoder, Christopher Werner,  
Thomas Kelley  
Faculty Adviser: David Johnson

10:00 AM  
REDC 107

***Development of Performance Specifications for Elastomeric Mounts***  
Sponsor: Eriez Magnetics  
Jason Senita, Joseph Miller, Vic Kubany  
Faculty Adviser: Robert Michael, Shannon Sweeney

10:30 AM  
REDC 106

***Auxiliary Mirror Design Study***  
Sponsor: Truck-lite Company Incorporated  
Garrett Inman, Keith Gahr, Mark Maze  
Faculty Adviser: David Johnson

10:30 AM  
REDC 107

***Design of Next Generation Bumper Guard and Design of Impact Tester***  
Sponsor: Corry Rubber  
Dale Clayton, Ryan Joschak, Matthew Sirko  
Faculty Adviser: Paul Koch, Robert Michael

11:00 AM  
REDC 106

***Exhaust Manifold Cost Reduction Study***  
Sponsor: General Electric Transportation  
Michael David, Joshua Lutz, Andrew Campbell  
Faculty Adviser: Thomas Briselden

# Plastics Engineering Technology

8:00 AM REDC 207	<b><i>Tunnel Gate Design to Minimize Parting Line Buildup</i></b> Eric Hanna, Evan Barna Faculty Adviser: Brian Young	8:00 AM REDC 208	<b><i>Concept Development of Baby Changing Station (CLOSED)</i></b> Johnny Tseng Faculty Adviser: Martin Dropik
8:30 AM REDC 207	<b><i>The Effects of Variations in Screw Return Time &amp; RPMS on Part Quality</i></b> Jeremy States, Nicholas Wheeler Faculty Adviser: Bradley Johnson	8:30 AM REDC 208	<b><i>Process Simulation of Pulse Cooling</i></b> Joshua Beebe, Timothy Dzurik Faculty Adviser: Martin Dropik
9:00 AM REDC 207	<b><i>Polystyrene Foam Tooling for Thermoforming Applications</i></b> Joseph Mayher, Christian Colaizzi Faculty Adviser: Jonathan Meckley	9:00 AM REDC 208	<b><i>Study of Imbalance Due to Corner Effects in Runners</i></b> Patrick Harris, Patrick Miller Faculty Adviser: Martin Dropik
9:30 AM REDC 207	<b><i>Leuco Dye Degradation Study</i></b> John Lawrence, David White Faculty Adviser: Jonathan Meckley	9:30 AM REDC 208	<b><i>Footballs by Gas-Assist/Gas Counter Pressure</i></b> Glen Murphy, Bryan Muscia Faculty Adviser: Bradley Johnson
10:00 AM REDC 207	<b><i>A Study of the Effects of UV Stabilizers on Samples with Leuco Dyes</i></b> John Lawrence, David White Faculty Adviser: Jonathan Meckley	10:00 AM REDC 208	<b><i>Best Placement of Overflow Tabs to Increase Weld Line Strength</i></b> Jeffrey Coles, Nicholas George Faculty Adviser: Brian Young
10:30 AM REDC 207	<b><i>Property Verification of Thermoplastic Elastomer Bottles Produced From Custom Designed Extrusion Blow Molding Molds</i></b> Daniel Dempsey Faculty Adviser: Jonathan Meckley	10:30 AM REDC 208	<b><i>Developing Thermoforming Indices of Thermoplastic Sheet</i></b> Kory Slye, Adam Martin Faculty Adviser: Brian Young
11:00 AM REDC 207	<b><i>The Effects of Thermoforming on Barrier and Strength</i></b> Timothy Schnetzka, Jesse Haedrich Faculty Adviser: Paul Koch	11:00 AM REDC 208	<b><i>The Effects of Graduated vs Constant Runner Diameters on Filling and Packing of a Plastic Part in Injection Molding</i></b> Matthew Weller, Gregory Swanson Faculty Adviser: John Beaumont
11:00 AM REDC 107	<b><i>Investigations of Alternating Hot and Cold Water Through an Injection Mold</i></b> Renee Chestnut, Amanda Mlaker, Bryan Petsch Faculty Adviser: Bradley Johnson		
11:30 AM REDC 207	<b><i>Processing and Degradation of Polylactate (PLA)</i></b> Rocco Viggiano, Christopher Mann Faculty Adviser: Paul Koch	11:30 AM REDC 208	<b><i>Material Warpage Response Characterization via Strategic Placement of High &amp; Low Sheared Laminates</i></b> Tyler Skiba, Nicholas Toomey Faculty Adviser: John Beaumont

# Computer Science

9:00 AM REDC 102	<b><i>Online Course Management System</i></b> Brandon Garzel, Anthony Moore, William Peterson Faculty Adviser: Danielle Goodwin, Gary Walker	9:30 AM REDC 102	<b><i>Biometric Authentication</i></b> Thomas Hazlett, Derek Mulder, Jasmine Tufek Faculty Adviser: Charles Burchard, Gary Walker
10:00 AM REDC 102	<b><i>Amorphous System Modeling</i></b> Alicia Klinvex Faculty Adviser: Blair Tuttle, Gary Walker	10:30 AM REDC 102	<b><i>Tiling Window Manager</i></b> Vince Povirk Faculty Adviser: Meng Su, Gary Walker

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