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Biomedical, Industrial & Human Factors
and
Mechanical and Materials Engineering Departments



Senior Design Expo

April 23, 2016

**Biomedical Engineering Session I
Russ 146**

9:00AM - MORNING SESSION:

Team 1: Endovascular Guidewire Design and Testing Models

Advisor: Dr. Caroline Cao

Brittanie Koerper, Ashley Mohler, John Ware, Kaylea Whitt

Team 2: Kinect System Body Scanner

Advisor: Dr. Ping He

Meshary Alghobain, Mazen Aljehani, Ali Alqarni, Ibrahim Alshadi

Team 3: Quantification of Wounds

Advisors: Jennifer Whitestone

Mahir Alawi, Mustafa Alnofaily, Abdulrhaman Altowyan, Michael Voelker

10:15-10:45AM Break for Project Displays

Team 4: Adaptive Hand Goniometer

Advisor: Dr. Jeff Hudson

Alexandra Heironimus, Garrett Norton, Tyler Starman, Joshua Schoeff

Team 5: Determination of Cranial Compliance

Advisor: Dr. Tarun Goswami

Eleni Cooper, Cody Eakes, Romicha Jeter, Dakota Kuhn

Team 6: Design and Development of a 3D Printed Prosthetic Foot

Advisor: Dr. Tarun Goswami

Mark Cargill, Bridget Fricke, Paul Ley, Daniel Rapking, Christen Wendel

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

Team 7: Arduino Controlled Neonatal Incubator

Advisor: Dr. Nasser Kashou

Tate Church, Ryan Gabbard, Nathan Pinion, Gurwinder Singh

Team 8: Hybrid Solar Infant Incubator

Advisor: Ronald Butcher

Sultan Alsulmi, Meshal Alsaeed, Abdulaziz Alzahrani, Faisal Alraqibah

2:30-3:00PM Project Displays

**Mechanical & Materials Engineering Session I
Russ 144**

9:00 AM - MORNING SESSION:

9:00 AM Efficient Air Conditioning

Advisor: Dr. Maher Amer

Fahad Aljetaili, Fehaid Almutairi, Saleh Almutairi, Abdulraham Alsaleh, Mohammad Kayedi

9:25 AM Topography UAV

Advisor: Dr. Maher Amer

Trent Fruhwirth, Jacob Marino, Bradly Swords, Jake Yates

9:50 AM Open

10:15-10:45AM Break for Project Displays

10:45 AM - MORNING SESSION:

10:45 AM Conductive Polymer

Advisor: Dr. Maher Amer

Meshary M. Alrubaeya, Christopher D. Christman, Michael J. Morris, Nicholas A Smith

11:10 AM Wheel Chair that Climbs the Sidewalk

Advisor: Dr. Maher Amer

Yousef Alsaleh, Bassam Aljabr, Ahmad Altuwaijry, Mohammed Almusaad

11:35 AM AC for Parked Cars

Advisor: Dr. Maher Amer

Waleed Alghamdi, Khaled Hakeem, Ali Alnaser, Faisal Alyami, Mohammed Heshipre

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

1:30 PM Solar Energy Collection System for K12 Building

Advisor: Dr. James Menart

Cameron Ehteshami, Nasser Alkaabi, Brian Calderon, Robert Foshee, Greg Phillips

1:55 PM Additive Manufacturing

Advisor: Dr. Ahsan Mian

Abhishek Gandhi, Jonathan Staton

2:20 PM Military Training Robot

Advisor: Dennis Hance

Derek Waterman, Garrett Waterman, Matt Carter, Dean Bornhorst

2:30-3:00PM Project Displays

**Mechanical & Materials Engineering Session II
Russ 145**

9:00 AM - MORNING SESSION:

- 9:00 AM Cryogenic Heat Exchanger**
Advisors: Dr. Rory Roberts, Dr. Mitch Wolff
Nate McGillivray, Paul Dolvin, Matt Dassow
- 9:25 AM Automated Snow Blower**
Advisors: Dr. Rory Roberts, Dr. Mitch Wolff
David Smith, Jawad Ahmed, Mohammed Alhakeem, Ala Aburahma, Fahad Alshareef
- 9:50 AM Solid Oxide Fuel Cell**
Advisor: Dr. Rory Roberts, Dr. Mitch Wolff
Cory Ostendorf, Micah Hess, Oliver Bicknell

10:15-10:45AM Break for Project Displays

10:45 AM - MORNING SESSION:

- 10:45 AM Open**
- 11:10 AM Automated Snow Removal**
Advisor: Dr. Rory Roberts
Chris Bailey, Steven Luttmmer, Mohammed Al Salih, Nathan Smith
- 11:35 AM Baja Race Team**
Advisor: Dr. Craig Baudendistel
Jarod Haman, Nathaniel Ankeney, Alex Kinnaird, Dylan Bunch

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

- 1:30 PM Renewable Energy Hovering UAV**
Advisor: Dr. Ha-Rok Bae
Kelsey Hill, David James, Craig Knapke, Matthew Franey, Joshua Schoettelkotte
- 1:55 PM Design a 3D Printer**
Advisor: Dr. Dan Young
Joel Summerfield, Kyle Jeffers, Nathan Meyer, DJ VanHouten
- 2:20 PM Police Robot**
Advisor: Dr. Hamed Attariani
Jaden Perkins, Tyler Barga

2:30-3:00PM Project Displays

**Biomedical Engineering Session II
Russ 154**

9:00AM - MORNING SESSION:

- Team 9: Low Cost Digital X-Ray Image Receptor**
Advisor: Dr. Jason Parker
Kaitlyn Danner, Phillip Nolasco, Christopher Nguyen, Jennifer Van Tilburg
- Team 10: Tracking Mock Ventricular Dynamics during DMVA Cardiac Support**
Advisor: Mr. Ben Schmitt
Richard Day, Matt Engel, Abdullah Nafea, Zibie Nyiramajyambere
- Team 11: Manufacturing of Artificial Cerebral Aneurysms**
Advisor: Dr. Zifeng Yang
Olivia Ashworth, Katrina Catledge, Bryce Laycock, Jordan Yaney

10:15-10:45AM Break for Project Displays

- Team 12: Multi-Sensory Medication Dispenser**
Advisor: Dr. Jaime Ramirez-Vick
Natalie Bickley, Muhammed Hamdan, Michaela Schwing, Stephanie Tesner
- Team 13: Robust Ambulatory EEG Headset**
Advisor: Dr. Michael Wisend
Diana Armstrong, Jacob Carr, Andrew Hesketh, Cyril Takem Baiyee
- Team 14: Mass Casualty Telemetry System**
Advisor: Dr. Julie Skipper
Skyler Hannebaum, Michael Rybak, Charles Simmons, Joe Salame

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

- Team 15: Low Cost In-Home Robotic Assistant**
Advisors: Dr. Julie Skipper
Shahd Almazroue, Daniel Cureton, Nour Hanandeh, Mark Taylor
- Team 16: Designing and Manufacturing a Smart Headband for Low Vision People**
Advisor: Dr. Julie Skipper
Reem Almy, Chelsea Mummert, Selena Nguyen, Thao Nguyen

2:30-3:00PM Project Displays

**Industrial and Systems Engineering
Russ 153**

9:00AM - MORNING SESSION:

Team 1: BevilleTrends

Advisor: Dr. Subhashini Ganapathy

Sponsor: Beville Engineering

Adnan Algarni, Housen Alsahhaf, Abdalwahab El Honi, Eisa Shamsah

Team 2: Beville Decision Aids

Advisor: Dr. Mary Fendley

Sponsor: Beville Engineering

Abdulrahman Alotaibi, Abdulaziz Arim, Kellee Farris, Mohammed Tamim

Team 3: KTH Parts

Advisor: Dr. Xinhui Zhang

Sponsor: KTH Parts Industries

Mohammad Abdullah, Abdullah Aldhuhayyan,
Khalid Alsamari, Mohammad Alwaheeb,
Ossman Madowh

10:30-10:40AM Break

Team 4: DMAX Man-Machine Value Added Work Structure

Advisor: Dr. Pratik Parikh

Sponsor:

Khalid Alassaf, Abdullah Aljazzaf, Adam Tokarsky,
Ali Zaman

Team 5: BIE Scheduling

Advisor: Dr. Pratik Parikh

Sponsor: BIE Department

Abdulaziz Alhumaid, Ahmad Aljuraishi, Shouq Alnajdy, Mohammed Alotaibi,
Ahmed Alowaidi, Tin Le

Team 6: Developing a Tool for BIE Program of Study Creation

Advisor: Dr. Xinhui Zhang

Basim Alghamdi, Natalie Alhashimi, Khalid Almesned, Faisal Alqahtani,
Alwaleed Altami, Ali Haji

**Mechanical & Materials Engineering Session III
Russ 150**

9:00 AM - MORNING SESSION:

9:00 AM

Reverse Pedal Bike

Advisor: Dr. Junghsen Lieh

Abdulrahman Al Abdulhai, Muhsen Almاده, Brandon
Hardman, Brendan Seymour

9:25 AM

Indoor Reversible Pedal Bike

Advisor: Dr. Junghsen Lieh

Salman Aljoud, Ali Abdulridha Alqattan, Nasser
Alshahrani, Ahmad Baqiri, Khaled Alqurashe

9:50 AM

Open

10:15-10:45AM Break for Project Displays

10:45 AM - MORNING SESSION:

10:45 AM

All Limb Cycle

Advisor: Dr. Junghsen Lieh

Majed A. Alhisan, Abdulrahman Alkhalidi, Essa A.
Alsaleh, Naser B. Alshammari, Ahmad J. Awadh

11:10 AM

Lunar Bots

Advisor: Dr. Scott Thomas

Andrew R. Kinnison, Ronald S. Picard, Joshua C. Rowe,
Andrew P. St John- Grubb

11:35 AM

Open

12:00-1:30PM Lunch and Project Displays

1:30PM - AFTERNOON SESSION:

1:30 PM

SAE Aerodesign

Advisor: Dr. Scott Thomas

Marcus Bracey, Emily Burns, Nathan Levkulich, Kyle
McNeely

1:55 PM

Airstream Trailer

Advisor: Dr. Scott Thomas

Matthew Edge, Matthew Greenawalt, Trevor Jacobs, Kyle
Lally

2:20 PM

Pump Monitoring System

Advisor: Dr. Hamed Attariani

Lucas Leffel, Damian Winner, Brooks Hay

2:30-3:00PM Project Displays