2011 ASEE
Midwest Section
46th Annual Conference

Educating Engineers for Today and the Future

September 28-30, 2011
Welcome to the 2011 ASEE Midwest Section Conference. This conference is the annual technical forum and business meeting of our section. It provides an important venue to support and encourage education innovation and excellence in our engineering programs. You will find many opportunities to increase your knowledge and network. We thank the conference committees, authors, reviewers, and other contributors for their efforts.

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Midwest Section Chair, Tennessee Technological University

Theresa Swift  
Midwest Section Chair-Elect  
Missouri University of Science and Technology

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Conference Schedule

Wednesday, September 28, 2011

6:00-8:00 p.m.  Welcoming Reception
                Hickory Lodge Atrium

Thursday, September 29, 2011

7:30 - 10:30 a.m.  Registration Desk Open
                   Event Center Exhibit Hall

8:30 - 9:00 a.m.  Welcoming Remarks by Dr. John Watson
                   Vice President for Academic Affairs
                   Event Center, Room C

9:00 - 10:20 a.m.  Paper Session 1
                   Event Center, Room C
                   Session Moderator:  Tom Roberts

9:00 a.m.  Service Learning in Engineering
            Lawrence Whitman - Wichita State University
            Karen Reynolds, Zulma Toro-Ramos - Wichita State University

9:20 a.m.  Direct Versus Indirect Assessment Methodologies
           Steve Menhart - University of Arkansas at Little Rock

9:40 a.m.  Adapting Team-Based Learning to Early Engineering Courses
           Robert O’Connell - University of Missouri

10:00 a.m.  Engineering Outreach: A Summer Program Approach
             Eric Specking - University of Arkansas
             Edgar Clausen - University of Arkansas

9:00 - 10:20 a.m.  Paper Session 2
                   Guest House, Room B
                   Session Moderator:  Steve Watkins

9:00 a.m.  Use of Computer Simulation Games for Instructional and
            Recruiting Purposes in Middle School and Jr. High Research
            Experiences for Teachers (RET) 2010
            Ed Pohl - University of Arkansas
            Melissa Miller - Lynch Middle School
            Randall Reynolds - Gravette Jr. High School

9:20 a.m.  Ansanm: A Cross-Cultural, Interdisciplinary Approach to
            Learning Human-Centered Design
            James Huff - Harding University
            Todd Patten, Richard Wells, Monte Cox - Harding University
9:40 a.m.  
*Evaluating Retention of Engineering Problem Solving Skills of First-Year Engineering Students*
Kellie Schneider - University of Arkansas
Heath Schluterman, C. Richard Cassady
University of Arkansas

10:00 a.m.  
*An Analysis of Online Master’s Programs in Engineering*
Michael Reynolds - University of Arkansas-Fort Smith
Nick Huisman - University of Arkansas-Fort Smith

10:20 - 10:45 a.m.  
**Break**

10:45 - 11:45 a.m.  
**Paper Session 3**
*Event Center, Room C*
*Session Moderator: Dennis Schulte*

10:45 a.m.  
*Laptop Recycling Project: A Service-Learning Experience*
Patricia Buford, Arkansas Tech University

11:05 a.m.  
*A Detailed Process for Creating Multiple Choice Exams in a Mechanics of Materials Course*
Jeffrey Thomas - Missouri University of Science and Technology
Malcolm Hays, Megan Meyer
Missouri University of Science and Technology

11:25 a.m.  
*Transforming a Microprocessors Course through the Progressive Learning Platform*
Sohum Sohoni - Oklahoma State University
David Fritz, Wira Mulia - Oklahoma State University

10:45 - 11:45 a.m.  
**Paper Session 4**
*Guest House, Room B*
*Session Moderator: Theresa Swift*

10:45 a.m.  
*Work-in-Progress: Enhancing Students’ Interest, Motivation and Academic Abilities using Video Games*
Jullius Marpaung - Oklahoma State University
Louis Johnson, William Flanery - Oklahoma State University

11:05 a.m.  
*A Simple Approach to the Introduction and Assessment of Lifelong Learning in a Freshman-Level Technology Course*
Julia Morse - Kansas State University Salina

11:25 a.m.  
*Incorporating 3D RP Process in Biomedical Engineering Design*
Shankar Krishnan - Wentworth Institute of Technology
Timothy Roemer, Pawel Kosakowski, Jonathan Cefalu
Wentworth Institute of Technology
12:00 - 1:00 p.m.       Lunch       
                        Event Center Dining Room

1:15 - 2:15 p.m.       Plenary Session  
                        Ian Baring-Gould       
                        NREL, Golden, Colorado

2:30 - 5:30 p.m.       Arkansas Nuclear One tour       
                        Museum of Automobiles tour       
                        NSF Noyce Program Grant Writing Workshop

6:00 - 6:45 p.m.       Banquet Reception       
                        River Room

6:45 - 8:30 p.m.       Banquet       
                        Event Center Dining Room

8:30 - 9:00 p.m.       Executive Committee       
                        Board Room

Friday, September 30, 2011

7:30 - 8:00 a.m.       Campus Representatives Meeting       
                        Guest House, Room B

8:00 - 9:00 a.m.       Paper Session 5       
                        Event Center, Room C       
                        Session Moderator: Francis Thomas

8:00 a.m.       An Interpretation of the Bode Plot in the Time Domain       
                        Monty Smith - Arkansas Tech University       
                        Lakshmi Sudhaker - Arkansas Tech University
8:20 a.m.  Bernoulli Balance Experiments Using a Venturi  
Edgar Clausen - University of Arkansas  
Roy Penney, Megan Dunn - University of Arkansas

8:40 a.m.  Women Recruitment/Retention in STEM Fields  
Rebeca Book - Pittsburg State University

8:00 - 9:00 a.m.  Paper Session 6  
Guest House, Room B  
Session Moderator:  Terry Martin

8:00 a.m.  Project-based Learning: Centrifugal Pump Operations  
Tom Marrero - University of Missouri

8:20 a.m.  Including Distance Technology in the Regular Classroom  
Doug Carroll - Missouri University of Science and Technology

8:40 a.m.  A Three-Semester Capstone Design Experience: Advantages and Disadvantages  
Kenneth Fischer - University of Kansas  
Christopher Depcik, Lorin Maletsky, Robert Sorem, Ronald Dougherty - University of Kansas

9:00 - 9:20 a.m.  Break

9:20 - 10:40 a.m.  Paper Session 7  
Event Center, Room C  
Session Moderator:  Raju Dandu

9:20 a.m.  The Machine Component Design Manual Project and Other Tools for Teaching Mechanical Design  
James Steuber - Arkansas Tech University

Marwan Abumahaimed - University of Arkansas  
Joseph J. Rencis - Tennessee Technological University

10:00 a.m.  Manufacturing Engineering Curriculum Renewal in a General BSE Program  
David Che - Geneva College  
David Clark, Tom Magnone - Geneva College

10:20 a.m.  Environmental Impacts of Nanotechnology and Its Products  
Bangwei Zhang, Wichita State University  
Ramazan Asmatulu, P.S. Dhanasekaran, Heath Misak - Wichita State University  
Devi Kala - Metropolitan State College of Denver
9:20 - 10:40 a.m.  Paper Session 8  
Guest House, Room B  
Session Moderator: Jim Lookadoo

9:20 a.m.  Another Look at the Freshman Engineering Course  
Robert Egbert - Missouri State University

9:40 a.m.  An Evaluation of Some Low-Cost Rapid Prototyping Systems for Educational Use  
Wayne Helmer - Arkansas Tech University  
Damon Mobbs - Arkansas Tech University

10:00 a.m.  Experiments on Experiments, Determining Uncertainty for Complex Experiments using Matlab  
Robert Fithen - Arkansas Tech University

10:20 a.m.  Using Open Source Software to Prepare Students for Senior Design  
Robert Fithen - Arkansas Tech University

11:00 - 11:30 a.m.  Session Chairs Meeting  
Guest House, Board Room  
Department Heads Session  
Guest House, Room B

11:30 - 12:30 p.m.  ASEE Membership Forum  
Event Center, Room C

12:30 - 2:00 p.m.  Lunch  
Event Center Dining Room  
Membership Meeting  
Awards Presentation
Founded in 1909, Arkansas Tech University is rich in history and is now one of the fastest growing universities in the state. Tech provides a campus small enough for individual attention, yet large enough for a quality education.

Our Mission: Arkansas Tech University, a state-supported institution of higher education, is dedicated to nurturing scholastic development, integrity, and professionalism. Tech offers a wide range of traditional and innovative programs which provide a solid educational foundation for life-long learning to a diverse community of learners.

Arkansas Tech University, located in Russellville, Arkansas is situated in the heart of the Arkansas River Valley Tri-Peaks region. Nestled between the beautiful Ozark and Ouachita Mountains as well as Lake Dardanelle State Park, Russellville offers small town appeal with city benefits. With a population of almost 25,000, Russellville is only an hour from the capital city.

The College of Applied Sciences encompasses the Departments of Agriculture, Computer & Information Science, Electrical Engineering, Emergency Management, Mechanical Engineering and Parks, Recreation & Hospitality Administration.

The Department of Electrical Engineering is home to six faculty and 170 undergraduate students. The department offers two versions of the BSEE degree, the traditional electrical engineering path or the computer engineering option. The department also offers a concentration in Electrical Engineering for students pursuing the Masters of Engineering degree at Arkansas Tech.

The Department of Mechanical Engineering is home to seven faculty and 274 undergraduate students. The department offers degrees at three levels, the Associate of Science in Nuclear Technology, the BSME, and concentrations in Mechanical Engineering and Nuclear Engineering as part of the Masters of Engineering degree program.

The American Society for Engineering Education (ASEE) has provided leadership and information to the U.S. engineering education community since 1893. Through several key policy studies of engineering education, provocative and informative publications, and opportunities for interaction among its members, ASEE has helped the community adapt to society’s changing needs to ensure the continued relevance of engineering education.