

2009 ASEE Midwest Section Annual Meeting

Headquarters and Hotel Accommodations

Embassy Suites

11th & P Streets

Lincoln, NE

September 16-18

Wednesday Evening, September 16, 2009

Registration Desk Open 5:00 – 7:00 PM Embassy Suites

6:00 – 8:00 PM Welcome Reception

Main Lobby , 1st Floor Othmer Hall

Sponsored by College of Engineering, University of Nebraska-Lincoln

On the University of Nebraska-Lincoln Main Campus

Between 16th and 17th Street on the North Side of Vine Street

You can walk to Othmer Hall from Embassy Suites (~10 blocks)

Ask for our map at Embassy Suites Desk or Registration Desk

or

print a map from the .pdf document on the conference website

Welcome to the 2009 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 committee, authors, reviewers, and other contributors for their efforts.



Steve E. Watkins
Section Chair



Dennis D. Schulte
Program Chair

Teaching and Service Award Sponsors:

University of Arkansas – Fayetteville

University of Kansas

University of Missouri Science & Technology

Washington University

University of Arkansas – Little Rock

Kansas State University

University of Nebraska

Wichita State University

Thursday, September 17 - Embassy Suites

7:30 AM – 2:00 PM Registration Desk Open

7:00 – 8:00 Breakfast (On Your Own: Hotel Guests - Courtesy Embassy Suites; others \$10 at desk)

8:00 – 8:10 Welcoming Remarks – Dennis Schulte and Associate Dean Ray Moore (Regents B)

Session 101: First Year Engineering – A Critical Time 8:20 – 10:00 AM
(Regents B, Moderator - David Jones – University of Nebraska)

8:20 What to Teach in a Freshman Engineering Course? Experiences in the First Year of the Missouri S&T/MSU Cooperative Engineering Program

Robert Egbert, Missouri State Univ.

8:40 Integration of First-Year Engineering Students into Research: 4 Year Data from the Electrical Vehicle Project

Kevin Lewelling, Univ. of Arkansas-Fort Smith

9:00 A First-Year Experience Course Sequence for Engineering Students at the University of Arkansas

Kellie Schneider Heath Schluterman , Richard Cassidy, Univ. of Arkansas-Fayetteville

9:20 The Incredible Edible Car: An Instructive and Fun Design Exercise for Engineering Freshmen

Crystal Powers, Don Edwards, Dennis Schulte, Univ. of Nebraska

9:40 Teaching Engineering for Students with Right Brain Dominance

Yumin Zhang, David Probst, Southeast Missouri State Univ.

Session 102: Communication, Education, and Research 8:20 – 10:00 AM
(Chancellor 2/3, Moderator - John Ballard - University of Nebraska)

8:20 Cross-Sectional Assessment of Technical Writing: Tool Development and Preliminary Data Analysis
Bruce Dvorak, Dennis Schulte, Mary Garbacz, Shari Aldrich, David Admiraal, Julia Soulakova, Univ. of Nebraska

8:40 Impact of Bio-Char on Carbon Dioxide in the Atmosphere

Nicholas Vanderslice, Thomas Marrero, Univ. of Missouri-Columbia

9:00 The Business of Engineering Education

Douglas Carroll, Missouri Univ. of Science & Technology

9:20 A Practical Faculty Mentoring Program

Lawrence Whitman, Zulma Toro-Ramos , John Watkins, Wichita State Univ.

9:40 The Case for Leadership Skills Courses in the Engineering Curriculum

Kaylea Dunn, Olsson Assoc./Univ. of Nebraska

Break 10:00 – 10:15

Session 103: New and Improved Courses 10:15 – 11:15 AM
(Chancellor 2/3, Moderator - Alisa Gilmore – University of Nebraska)

10:15 An Improved Instrumentation and Controls Course for Agricultural and Biological Engineering
George Meyer, Univ. of Nebraska

10:35 Biomaterials Course Development for Undergraduate Engineering Education

Ramazan Asmatulu, Wichita State Univ.

10:55 Integrating Asynchronous Paradigms into VLSI Design Course

Waleed Al-Assadi , Scott Smith, Missouri Univ. Science and Technology

Thursday, September 17 Cont'd - Embassy Suites

Session 104: Pre-College Students 10:15 – 11:15 AM

(Regents B, Moderator - Virginia Baldwin - University of Nebraska)

10:15 UASPP: Three Years of Helping Middle School Teachers Devise Their Own Hands on Engineering and Science Activity

Shannon Davis, Bryan Hill, Carol Gattis, Bradley Dearing, Christa Hestekin, Edgar Clausen, Univ. of Arkansas-Fayetteville

10:35 Construction Related Activities for Students in 1st - 8th Grade

Dennis Audo, Seth O'Brien, Pittsburgh State Univ.

10:55 Use of Robotics, GPS and GIS Technologies to Encourage STEM-Oriented Learning in Youth

Viacheslav Adacmhuk, Gwen Nugent, Bradley Barker, Neal Grandgenett, Univ. of Nebraska

Plenary Session: 11:15 – 11:50 AM (Regents B, Moderator - Steve Watkins, Missouri Univ. of S & T)

Unexplored Search Spaces: University Structures and Gaps in Optimizing Student Learning

Please Bring Laptops

Ray Luechtefeld, Missouri University of S & T

12:00 – 1:00 Luncheon (Regents A)

Nebraska Engineering: Dean David Allen, UNL College of Engineering

Keynote Speaker: Dr. William Kelly, ASEE Manager of Public Affairs, Washington, DC

[former Dean Catholic University, Washington, DC and former Chair, Civil Engineering – UNL]

"Observations on the Status of Engineering Education in Challenging Economic Times"

Thursday Afternoon: Workshops and Tours

**Option I Workshop Part I 1:15 – 3:00 Andy Marshall, National Instruments – LABVIEW
Chancellor 2/3 (Introduction - George Meyer, University of Nebraska)**

Break 3:00 – 3:15

**Workshop Part II 3:15 – 5:00 Andy Marshall, National Instruments – LABVIEW
Chancellor 2/3**

**Option II Tour: 1:15 – 5:15
Transportation by UNL Bus, Pickup at Embassy Suites**

1:25-2:10 Nebraska Tractor Test Laboratory is the only officially designated tractor testing station for the Organization for Economic Co-operation and Development (OECD) in the U.S. Twenty-nine OECD countries adhere to the tractor test codes with active tractor test stations in approximately 25 of those countries. The OECD requires that tractors be tested in the country of manufacture.

2:15-3:00 International Quilt Study Center is the leader in the burgeoning field of quilt studies. The ASEE tour will focus on the engineering and architecture of the Lied Certified building design that preserves this multimillion dollar collections of the Center. ASEE members are welcome to stay to examine the complex ways gender, class, ethnicity, aesthetics, politics, religion and technology find expression in the textile arts, quilting traditions, design and culture.

3:30-4:15 Nebraska Biological Process Development Facility (BPDF) is a multidisciplinary "turn-key" facility with over 47 full-time scientist, engineers, and administrative personnel focused on biopharmaceutical process research, development, and manufacturing of candidate vaccines and biotherapeutics derived from recombinant expression systems.

4:20-5:05 National Bridge Research Organization (NABRO) Laboratory is in the forefront of resolving issues that facilitate the use of high performance steel in bridge design and construction. NABRO has projects in Nebraska, Kansas, Iowa and Missouri.

Thursday Evening – Embassy Suites

Social Hour

6:00 – 7:00

Conference Banquet 7:00 – 8:30 (Regents A, Entertainment – Bathtub Dogs)

Executive Meeting 8:45 PM (Location to TBD)

Friday, September 18, 2009 - Embassy Suites

7:00 – 8:00 Breakfast (On Your Own: Hotel Guests - Courtesy Embassy Suites; Others \$10 at desk)

7:30 – 8:10 Campus Representatives Meeting (Embassy Breakfast Area)

7:30 – 9:00 Registration Desk Open

Session 301: Hybrid Approaches to Education 8:20 – 10:00 AM
(Chancellor 2/3, Moderator - Francis Thomas - Kansas University)

8:20 Online Distance Education: Hybrid Coursework & Research Methods
Dan Bumblauskas, ABB Inc./Iowa State Univ.

8:40 Improvement in Laboratory Skills and Knowledge Achieved Through Individual Student Lab Participation
Carl Greco , Jim Reasoner, Arkansas Tech Univ.

9:00 The Best of Both Worlds: Hybrid Learning
Michael Reynolds, David Paulus, Univ. of Arkansas-Fort Smith

9:20 Using Storytelling to Meet the Technology and Information Literacy Needs of Millennial Students
Greg Stephens, Kansas State University at Salina

9:40 An Academic Home Run: Baseball, Umpiring and Mathematics
Robert Homolka, Kansas State University at Salina

Session 302: Creative Methods of Teaching 8:20 – 10:00 AM
(Regents B, Moderator - Michael Jorgensen - Wichita State University)

8:20 Suboptimization of Motivation Approaches in Engineering Education
Ray Luechtefeld, Steve Watkins, Missouri Univ. of Science and Technology

8:40 Solving Beam Deflection Problems using a Traditional Approach
Joseph Rencis, Hartley Grandin , University of Arkansas-Fayetteville

9:00 Desktop Learning Module Heat Exchanger Performance
Colin Paul, Melinda O'Neil, Roy Penney, Bernard Van Wie, Paul Golter, Robert Beitle, Edgar Clausen, Univ. of Arkansas-Fayetteville

9:20 Importance of Nanosafety in Engineering Education
Ramazan Asmatulu, E. Asmatulu, A. Yourdkhani, Wichita State Univ.

9:40 Advanced Nanotechnology Entrepreneurial Education
Christopher Ibeh, Pittsburg State Univ.

10:00 – 10:15 Break

Friday, September 18, 2009 Continued - Embassy Suites

10:15 – 11:30 Plenary Forum on ASEE Phase 1 Report “Creating a Culture for Scholarly and Systematic Innovation in Engineering Education”

(Regents B, Moderators Tom Roberts, Kansas State University and Joe Rencis, University of Arkansas)

The major focus of this plenary will be a summary of the ASEE Phase 1 Report and gathering input on the following questions regarding the upcoming ASEE Phase 2 project:

1. How can more engineering faculty engage in *scholarly and systematic innovation* in engineering education?
2. How can innovation as a *cycle of education practice and research* be practiced more effectively?
3. What can we do to make engineering programs more *engaging, relevant, or welcoming* based on what we know about learning?

11:30 – 1:00 Business Luncheon (Regents C, Embassy Suites)

ASEE Directors Comments, Section Reports, Awards, Recognitions, Elections, Awards