

## Schedule

### Wednesday, September 17, 2008 University of Tulsa

6:00 – 8:00 PM Welcome Reception  
Allen Chapman Activity Center, Gallery  
Sponsored by Steven J. Bellovich, Dean of Engineering and Natural  
Sciences, The University of Tulsa

### Thursday, September 18, 2008 DoubleTree Warren Place

7:30 AM - 2:00 PM - Registration Desk Open  
7:30- 8:30 AM – Breakfast  
8:30 - 9:00 AM - Welcoming Remarks  
9:00 - 10:15 AM - Concurrent Paper Session 1

#### **Session 101: Ethics and Leadership – Parkview West**

Moderator: Charles Wu

9:00 *E-Leadership In Virtual Workforce*, James A. Ejiwale, Jackson State University  
9:25 *Does Education Have an Impact on Student Ethical Reasoning? Developing an  
Assessment of Ethical Reasoning for Engineering and Business Students*, Chih-Hao Wu,  
Kim Troboy, Tracy Cole, Loretta Cochran, and David Roach, Arkansas Tech University  
9:50 *Leadership Skills Development Through Service Learning*, James A. Ejiwale, Jackson  
State University

#### **Session 102: Free Forum on Engineering Education – Aspen**

Moderator: Joseph Rencis

9:00 *Increasing Engineering Retention Using Only Incoming Data*, Michael C. Reynolds,  
University of Arkansas - Fort Smith  
9:25 *A Comparative Analysis of Engineering Research Expenditures in Selected Big 12  
Universities*, Shaibal Mukherjee and Pallabi Mukherjee, University of Oklahoma (paper  
not reviewed)  
9:50 *ABET Update*, Jim Lookadoo, Wichita State University (presentation only)

#### **Session 103: Novel Classroom Problems – Denver**

Moderator: Thomas Cairns

9:00 *Volleyball: A New Twist On Terminal Velocity*, Thomas W. Cairns, The University of  
Tulsa  
9:25 *Solar Flux and Absorptivity Measurements: A Design Experiment in Undergraduate  
Heat Transfer*, W. Roy Penney, Kendal J. Brown, Joel D. Vincent, and Edgar C. Clausen,  
University of Arkansas

10:15 - 10:30 AM – Break

10:30 AM - 11:45 PM - Concurrent Paper Session 2

**Session 201: K-12 Outreach – Parkview West**

Moderator:

10:30 *An Electrical Engineering Summer Academy for Middle School and High School Students*, Peter LoPresti, Theodore W. Manikas, and Jeff Kohlbeck, University of Tulsa

10:55 *UASPP: Helping Middle School Teachers Devise Their Own Hands-on Engineering and Science Activities*, Shannon G. Davis<sup>1</sup>, Bryan W. Hill<sup>1</sup>, Carol S. Gattis<sup>1</sup>, Bradley M. Dearing<sup>2</sup>, and Edgar C. Clausen<sup>1</sup>, <sup>1</sup>University of Arkansas and <sup>2</sup>Illinois State University High School

11:20 *The Physics Journal Club*, Jerry McCoy, Scott Holmstrom, and Parameswar Hari, The University of Tulsa

**Session 202: Novel Classroom Practices – On-line – Aspen**

Moderator:

10:30 *Teaching a Laboratory Intensive Class in a Distance Education Mode*, J. Moore<sup>1</sup>, M.A. Thornton<sup>1</sup>, and R.W. Skeith<sup>2</sup>, <sup>1</sup>Southern Methodist University and <sup>2</sup>University of Arkansas

10:55 *Integrating Online Instructional Tools in a Large Engineering Course: An Exploratory Study*, Dan Cernusca and Douglas R. Carroll, Missouri University of Science and Technology - Rolla

11:20 *Using Self-Paced Learning to Personalize Engineering Education*, Christi L. Patton, The University of Tulsa

**Session 203: Novel Classroom Practices – Denver**

Moderator:

10:30 *Student Participation in EE Lab Teams as a Predictor of Acquired Skills and Knowledge*, E. Carl Greco, Jim D. Reasoner, and Ronald E. Nelson, Arkansas Tech University

10:55 *Developing Problem Solving and Critical Thinking Skills in Physics and Engineering Physics Courses*, Parameswar Hari, The University of Tulsa

11:20 *Integrating Fatigue Analysis into a Machine Design Course or Finite Element Course*, Josh Coffman<sup>1</sup>, Sachin S. Terdalkar<sup>1</sup>, Joseph J. Rencis<sup>1</sup>, and Ashland O. Brown<sup>2</sup>, <sup>1</sup>University of Arkansas, Fayetteville and <sup>2</sup>University of the Pacific

12:00 - 1:00 PM – Luncheon – Parkview East

Executive Committee Meeting in Parkview West

Sponsored by Pearson Education

1:15 - 5:00 PM – Workshops and Tours

Workshops: Parkview West

1:15 – 3:15: Computational Analysis and Programming in MATLAB

3:30 – 5:30: Modeling Dynamic Systems Using Simulink

Tours:

1:45 – 2:45: FlightSafety Simulations or McElroy Manufacturing

4:00 – 5:00: Spirit Aerosystems or SulzerChemTech

6:00 - 7:00 PM - Social Hour – Parkview East

7:00 - 8:30 PM - Conference Banquet – Parkview East

## **Friday, September 19, 2008**

### **DoubleTree Warren Place**

7:30 - 8:30 AM - Breakfast; Registration Desk Open, Campus Representatives Meeting

9:00 - 9:50 AM - Concurrent Paper Session 3

#### **Session 301: Continuing Professional Development – Parkview West**

Moderator: Shirley Pomeranz

9:00 *Richardson Extrapolation Applied to the Numerical Solution of Boundary Integral Equations for a Laplace's Equation Dirichlet Problem*, Shirley Pomeranz, The University of Tulsa

9:25 *Simulator for Teaching Process Heater Operating Principles*, C. Baukal and W. Bussman, John Zink Company, LLC

#### **Session 302: Energy – Aspen**

Moderator:

9:00 *CNT Reinforced Nanocomposite Fiber Fabrication for Undergraduate Students*, R. Asmatulu, W. Khan, and M.B. Yildirim, Wichita State University

9:25 *International Student Projects in Sustainable Energy Engineering*, Jesse French, University of Tulsa (presentation only)

#### **Session 303: Industrial Relations – Denver**

Moderator:

9:00 *Industry-University Partnerships for Undergraduate Engineering Internships*, Theodore W. Manikas and Kaveh Ashenayi, The University of Tulsa

9:25 *Maintaining Industry and Academic Partnership Through An Advisory Council*, Rebeca G. Book, Pittsburg State University

9:50 - 10:00 AM – Break

10:00 - 11:40 AM - Concurrent Paper Session 4

**Session 401: Innovative Curricula – Laboratories – Parkview West**

Moderator:

10:00 *An Inexpensive Flow-Bench for Mechanical Engineering Labs*, Ryan Eckl, Christopher Johnson, Shawn Shields, Brad Cullipher, and Wayne Helmer, Arkansas Tech University

10:25 *Review of a Robotics Lab for Engineering Undergraduates*, Timothy J. Annesley and David P. Miller, University of Oklahoma

10:50 *Graduate-level hands-on laboratory practices of microdevices for microoptic and biosensor applications*, Chang-Soo Kim and Steve E. Watkins, Missouri University of Science and Technology

11:15 *Nanotechnology and Relevant Technologies Lab Development at WSU*, Ramazan (MI) Asmatulu, Heath E. Misak, Bailey Cooper, and Waseem Khan, Wichita State University

**Session 402: Innovative Curricula – Mathematics – Aspen**

Moderator:

10:00 *An Application of Methodological and Notational Comparisons*, Anne A. Fischer, The University of Tulsa

10:25 *Linear Algebra is Your Friend: Least Squares Solutions to Overdetermined Linear Systems*, R. E. Babcock and Mark E. Arnold, University of Arkansas

10:50 *Engineering Math*, Nathan Klingbeil, Wright State University (presentation only)

**Session 403: Innovative Curricula – Perspectives - Denver**

Moderator:

10:00 *A Global Design Competition*, Lawrence Whitman, Zulma Toro-Ramos, Dan Allison, Colin Davidson, Martha Shawver, Shelly Belles and Chris Wilkinson, Wichita State University and Spirit AeroSystems

10:25 *A New Recycling Course Development for Undergraduate Education at WSU*, R. Asmatulu, H. Misak, and W. Khan, Wichita State University

10:50 *Application of the “Engineering Mindset” for Worldview Evaluation*, Dominic M. Halsmer, Oral Roberts University

12:00 PM - 1:00 PM - Business Luncheon – Parkview East

## **Sponsors**

Thanks to the sponsors of this year's section meeting!

College of Engineering and Natural Sciences, The University of Tulsa – Welcome Reception

Pearson Education – Thursday Luncheon

Deans of the following schools – Awards

Arkansas Tech University

Kansas State University

K-State at Salina

Missouri University of Science and Technology

Oral Roberts University

University of Arkansas

University of Kansas

University of Missouri - Columbia

University of Oklahoma

Wichita State University

## Directions to Tours

### Driving directions from hotel to Flight Safety International Inc

**6.0 mi** – about **15 mins**

1. Head **north** toward **E 61<sup>st</sup> St S** 0.1 mi
2. Turn **right** at **E 61st St S** 5.6 mi
3. Turn **left** at **N Hemlock Circle** 0.2 mi

#### **Flight Safety International Inc**

2700 N Hemlock Cir, Broken Arrow, OK 74012

### Driving directions from hotel to McElroy Manufacturing, Inc.

**6.9 mi** – about **20 mins**

1. Head **north** toward **E 61<sup>st</sup> St S** 0.1 mi
2. Turn **right** at **E 61<sup>st</sup> St S** 0.1 mi
3. Turn **left** at **S Yale Ave** 6.0 mi
4. Turn **right** at **E Admiral Pl** 0.2 mi
5. Turn **left** into McElroy Manufacturing 151 ft

#### **McElroy Manufacturing, Inc.**

833 N Fulton Ave, Tulsa, OK 74115

### Driving directions from hotel to Sulzer Chemtech

**7.3 mi** – about **14 mins**

1. Head **north** toward **E 61<sup>st</sup> St S** 0.1 mi
2. Turn **right** at **E 61<sup>st</sup> St S** 0.1 mi
3. Turn **left** at **S Yale Ave** 1.6 mi
4. Turn **left** at **E Skelly Dr** (signs for **OK-66 W/I-44 W**) 0.3 mi
5. Take the ramp on the **left** onto **I-44 W/OK-66 W** 3.8 mi
6. Take exit **225** toward **Elwood Ave** 0.2 mi
7. Turn **right** at **W 51st St S** 335 ft
8. Turn **left** at **S Elwood Ave** 0.9 mi
9. Turn **left** at **W 41st St S** 0.3 mi
10. Turn **right** into Sulzer ChemTech 430 ft

#### **Sulzer Chemtech**

4019 South Jackson Avenue, Tulsa, OK

**Driving directions from hotel to Spirit Aero Systems**

**12.7 mi – about 19 mins**

1. Head **north** toward **E 61<sup>st</sup> St S** 0.1 mi
2. Turn **right** at **E 61<sup>st</sup> St S** 0.1 mi
2. Turn **left** at **S Yale Ave** 1.5 mi
3. Turn **right** at **E Skelly Dr** (signs for **I-44 E/OK-66 E**) 0.2 mi
4. Take the ramp on the **left** onto **I-44 E/OK-66 E** 3.9 mi
5. Take exit **234A** to merge onto **US-169 N** toward **Owasso** 5.5 mi
6. Take the **Westbound 36th St N** exit 0.2 mi
7. Merge onto **E 36th St N** 1.0 mi
8. Turn **left** at **N Mingo Rd** 0.3 mi

**Spirit Aero Systems**

3330 N Mingo Rd, Tulsa, OK 74116

**Driving directions from Flight Safety Simulations to hotel**

**6.1 mi – about 16 mins**

1. Head **south** on **N Hemlock Circle** toward **N Hemlock Ct** 0.2 mi
2. Turn **right** at **E 61st St S** 5.6 mi
3. Turn **left** at **S Yale Ave** 0.1 mi
4. Turn **right** at **Richard Shinn Blvd** 0.1 mi

**Driving directions from McElroy Manufacturing to hotel**

**11.2 mi – about 19 mins**

1. Turn **right** onto **Admiral Pl** 0.2 mi
2. Turn **left** at **Yale Ave** 6.1 mi
3. Turn **right** at **Richard Shinn Blvd** 0.1 mi

**Driving directions from Flight Safety to Sulzer Chemtech**

**14.0 mi – about 20 mins**

1. Head **north** on **N Hemlock Circle** toward **N Hemlock Ct** 0.3 mi
2. Continue on **W Concord St** 0.3 mi
3. Turn **left** at **S 145th E Ave/N Aspen Ave** 0.2 mi
4. Take the **OK-51 E** ramp to **Tulsa** 0.3 mi
5. Merge onto **OK-51 W** 5.2 mi
6. Take the exit onto **I-44 W** toward **Okla. City** 6.2 mi
7. Take exit **225** toward **Elwood Ave** 0.2 mi
8. Turn **right** at **W 51st St S** 335 ft
9. Turn **left** at **S Elwood Ave** 0.9 mi
10. Turn **left** at **W 41st St S** 0.3 mi
11. Turn **right** into Sulzer ChemTech 430 ft

**Sulzer Chemtech**

4019 South Jackson Avenue, Tulsa, OK 74107

**Driving directions from McElroy Manufacturing to Sulzer Chemtech**

**10.0 mi – about 16 mins**

3. Turn **right** at **E Admiral Blvd** 0.5 mi
4. Take the ramp on the **left** onto **I-244 W/US-412 W** 4.3 mi
5. Take the **OK-51 E/I-244 W/US-64 E** exit toward **Broken Arrow/Okla. City** 0.2 mi
6. Merge onto **I-244 W** 3.2 mi
7. Continue on **US-75 S** (signs for **Okmulgee/US-75 S/Glenpool**) 0.5 mi
8. Take the **W 41st St** exit toward **Union Ave** 0.2 mi
9. Turn **left** at **W 41st St S** 0.6 mi
10. Turn **left** into Sulzer Chemtech 430 ft

**Sulzer Chemtech**

4019 South Jackson Avenue  
Tulsa, OK 74107

**Driving directions from Sulzer Chemtech to hotel**

**7.5 mi – about 14 mins**

1. Turn **left** at **W 41st St S** 0.3 mi
2. Turn **right** at **S Elwood Ave** 0.9 mi
3. Turn **left** at **W 51st St S** 0.1 mi
4. Continue on **W Skelly Dr** 0.3 mi
5. Slight **right** to merge onto **I-44 E/OK-66 E** 3.9 mi
6. Take exit **229** toward **St Francis Hospital/Yale Ave** 374 ft
7. Merge onto **E Skelly Dr** 0.1 mi
8. Turn **right** at **S Yale Ave** 1.5 mi
9. Turn **right** at **Richard Shinn Blvd** 0.1 mi

**Driving directions from Flight Safety Simulations to Spirit Aero Systems**

**12.8 mi – about 17 mins**

1. Head **north** on **N Hemlock Circle** toward **N Hemlock Ct** 0.3 mi
2. Continue on **W Concord St** 0.3 mi
3. Turn **left** at **S 145th E Ave/N Aspen Ave** 0.2 mi
4. Take the **OK-51 E** ramp to **Tulsa** 0.3 mi
5. Merge onto **Broken Arrow Expy/OK-51 W** 2.5 mi
6. Take the exit onto **US-169 N** toward **Owasso** 7.8 mi
7. Take the **Westbound 36th St N** exit 0.2 mi
8. Merge onto **E 36th St N** 1.0 mi
9. Turn **left** at **N Mingo Rd** 0.3 mi

**Spirit Aero Systems**

3330 N Mingo Rd, Tulsa, OK 74116

**Driving directions from McElroy Manufacturing to Spirit Aero Systems**

**5.5 mi – about 11 mins**

1. Turn **left** onto **Admiral Pl** 0.75 mi
3. Turn **left** at **N Sheridan Rd** 0.2 mi
4. Turn **right** to merge onto **I-244 E/US-412 E** 1.8 mi
5. Take exit **13A** for **Mingo Rd** 0.2 mi
6. Turn **left** at **N Mingo Rd** 2.7 mi

**Spirit Aero Systems**

3330 N Mingo Rd, Tulsa, OK 74116

**Driving directions from Spirit Aerosystems to hotel**

**11.3 mi – about 18 mins**

- |   |        |
|---|--------|
| 1. Head <b>south</b> on <b>N Mingo Rd</b> toward <b>E Apache St</b>   | 1.7 mi |
| 2. Turn <b>left</b> at <b>E Pine St</b>   | 0.6 mi |
| 3. Turn <b>right</b> to merge onto <b>US-169 S</b>  | 2.4 mi |
| 4. Take the <b>OK-66 W/I-44 W</b> exit toward <b>Okla. City</b>   | 0.1 mi |
| 5. Keep <b>left</b> at the fork to continue toward <b>I-44 W/OK-66 W</b> and merge onto <b>I-44 W/OK-66 W</b> | 4.3 mi |
| 6. Take exit <b>229</b> toward <b>St Francis Hospital/Yale Ave</b>  | 0.2 mi |
| 7. Merge onto <b>E Skelly Dr</b>  | 0.2 mi |
| 8. Turn <b>left</b> at <b>S Yale Ave</b>  | 1.6 mi |
| 9. Turn <b>right</b> at <b>Richard Shinn Blvd</b>   | 0.1 mi |