# Monday April 3\textsuperscript{rd} 2006 Technical Sessions

## Technical Session 1: 10:15 – 11:55 am

### T1-A: Instructional Unit Rm

**Chair:**

- *Engineering Student Self-assessment in a Capstone Design Course*
  Laura W. Lackey, Richard O. Mines, Jr. and Hodge E. Jenkins, Mercer University
- *Using Technological Disasters to Teach Engineering Ethics and Technology in Society*
  Robert G. Batson, University of Alabama
- *Unified Lecture Software for Mechanics of Deformable Bodies*
  Scott L. Hendricks, L. Glenn Kraige and Don H. Morris, Virginia Tech
- *A Model for Broadening Participation in Computing*
  Juan E. Gilbert, Auburn University

### T1-B: Engineering Technology Rm

**Chair:**

- *Using Steam Engines to Teach Parametric Modeling and Prototyping*
  Aaron K. Ball, Chip W. Ferguson and William L. McDaniel, Western Carolina University in Cullowhee, North Carolina.
- *Electromagnetic Radiation and Scattering of Wire Structures*
  Zhaoxian Zhou and Randy Buchanan, University of Southern Mississippi
- *Incorporating Civic Engagement*
  A. Mitchell Wood and B. Neil Whitten, East Tennessee State University
- *Math Remediation in A First Semester Engineering Technology Course*
  Sandeep Ahuja, Virginia State University

### T1-C: Mechanical Engineering Rm

- *Using Computational Software Root Solvers: A New Paradigm for Problem Solutions?*
  Sandeep Ahuja, Virginia State University
B. K. Hodge and Rogelio Luck, Mississippi State University

**Senior Capstone Design Experiences at the University of Tennessee: NASA and DOE Student Programs**
Viatcheslav I. Naumov, David K. Irick, Lawrence A. Taylor and Masood Parang, University of Tennessee

**Near-Space and the BAMASAT Program**
John Baker, Sadie Cole, Emad Abdel-Raouf and Bob Taylor, University of Alabama

**Integrating Materials Science into the Mechanical Engineering Curriculum**
Judy Schneider, Mississippi State University

**Frame Analysis and Design Computer Classroom/Laboratory Module for Machine Design**
Hodge Jenkins, Mercer University

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<th>T1-D:</th>
<th>Chemical Engineering</th>
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<td>Chair:</td>
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<tr>
<td></td>
<td>The Experimental Prototype: Critical Thinking and Real-World Problem Solving in Engineering Education</td>
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<td></td>
<td>Pedro E. Arce, Joseph Biernacki and Perry Melton, Tennessee Tech University</td>
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<td>A Freshman Course in Chemical Engineering</td>
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<td>Donald P. Visco, Jr. and Pedro E. Arce, Tennessee Technological University</td>
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<td>Computer Facilitated Mathematical Methods in Engineering – Similarity Solution</td>
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<td>Venkat R. Subramanian, Tennessee Tech University</td>
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<td>Applying Techniques Learned in an ASEE –SE Workshop: Adoption of a High Performance Learning Environment (Hi-PeLE) for Group Experiments</td>
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<td>Adrienne R. Minerick, Mississippi State University; Pedro Arce, Tennessee Technological University</td>
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<tr>
<th>T1-E:</th>
<th>Civil Engineering</th>
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<td>Chair:</td>
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<td>Teaching Design throughout the Civil and Environmental Engineering Curriculum</td>
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<td>Thomas R. Dion, Kevin C. Bower, Timothy W. Mays and William J. Davis, The Citadel</td>
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<td>Transportation Systems Curriculum for High Schools</td>
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<td>Matthew E. Elam, Daniel J. Fonseca, and Jay K.</td>
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Lindly, University of Alabama

*State-of-the-Art: Law Enforcement Surveillance Impact on Construction Zones*

Tulio Sulbaran and David Marchman, University of Southern Mississippi

**Technical Session 2: 1:40 – 3:20 pm**

**T2-A:** Instructional Unit

*The Feasibility of Online Laboratories*
  John W. Lipscomb, Jr., University of Southern Mississippi

*Technology in the Throes of a Paradigm Shift*
  B. Wayne Walters, University of Southern Mississippi

*Forget about Teaching: It is all about Learning!*
  Pedro E. Arce, Tennessee Tech University

*Online Learning in Engineering Graphics Courses: Research, Tools, and Best Practices*
  Ted J. Branoff and Richard A. Totten, North Carolina State University

**T2-B:** Chemical Engineering

*Using Graduate Students to Teach an Undergraduate Class*
  Barath Baburao, Saravanan Swaminathan and Donald P. Visco Jr., Tennessee Technological University

*Faculty Mentoring – a Protégé’s Perspective*
  Venkat R. Subramanian, Tennessee Tech University

*Creating and Modifying the Fuel Cell Courses for Hydrogen Economy*
  Chunsheng Wang, Tennessee Technological University

*Renovation and Upgrades of Chemical and Biological Engineering Unit Operations Lab to Teach Technical Skills in Emerging Engineering Fields*
  Christopher S. Brazel, Peter E. Clark, Tonya M. Klein, Alan M. Lane and Stephen M.C. Ritchie; University of Alabama
T2-C: Computer Engineering and Technology

Chair:

Adding practice and realism to Information Technology courses
Gary Johnsey, University of Southern Mississippi
Radio Frequency Identification (RFID) Applications in the Medical Field
Shelton Houston and Wesley Blackwell, University of Southern Mississippi
Using FPGAs to Simulate and Implement Digital Design Systems in the Classroom
Tyson S. Hall, Southern Adventist University; James O. Hamblen, Georgia Institute of Technology
Hands-On Operating Systems Made Easy
Juan Carlos Guzmán and Patrick O. Bobbie, Southern Polytechnic State University

T2-D: Electrical Engineering

Chair:

Sparking Interest in Middle and High School Students Using a Robotics Competition
Mark McKinney and Robert Barsanti, The Citadel
A Very Functional Transistor Circuit to Demonstrate Biasing, Voltage and Current Gains, and Frequency Response
Robert J. Scoff, University of Memphis
Consolidating Design Experience Through Product Development
Chris B. Effiong, Ronny Howard and Allen Crittendon, University of Tennessee at Martin

T2-E: Instructional Unit

Chair:

Application of Pedagogy or Andragogy: Understanding the Differences between Student and Adult Learners
Keith Plemmons, The Citadel
A Back to the Basics Approach to Teaching Engineering Ethics
Michael D. Boyette, North Carolina State University
The Declining Work Ethic of the American Engineering
2006068WEL
Student
S. Michael Wells, Tennessee Tech University

Positive Experience with Challenge-Based Instructional Modules across Engineering Disciplines
Amy de Jongh Curry, J. Daniel Strahl, Deborah L. Lowther and Eugene Eckstein, The University of Memphis

Technical Session 3: 4:10 – 5:30 pm

T3-A: Instructional Unit

Learning by Doing—Hands-On Experiments for a Middle-School Outreach Program
Eugene F. Brown, Virginia Tech; Robert A. Kavetsky, Office of Naval Research; Robert L. Stiegler, Naval Surface Weapons Center, Dahlgren Division (NSWCDD); Juanita Jo Matkins, College of William and Mary; Gail B. Harding, College of William and Mary; Andrea L. Bengier, Stafford County Public Schools; Ray Gamache, Naval Surface Weapons Center, Dahlgren Division (NSWCDD); Jason Kremar, Naval Surface Weapons Center, Dahlgren Division (NSWCDD)

Preparing Engineers for the Job Search Through Mock Telephone Interviews with Alumni
Julie E. Sharp, Vanderbilt University

An Online Capstone Project Evaluation System
B. Morrison, B. Harbort, S. Bajracharya, L. Barge, W. Carlton, W. Phillips and B. Smoot, Southern Polytechnic State University

Construction Management Program Curriculum Content Derived from Industrial Workflow Processes
John Jeffrey Hannon, University of Southern Mississippi

T3-B: Civil Engineering

Ten Years Later: Teaching Mathcad as a Non-Traditional Programming Language
John A. Murden and Kenneth P. Brannan, The Citadel

Student Engagement in Elementary Surveying

Shane M. Palmquist and C. Warren Campbell, Western Kentucky University

**T3-C:** Mechanical Engineering  

*The BEST Approach to Middle and High School Outreach*  
L. Brent Jenkins, Southern Polytechnic State University  

*PH Grade Assist: Homework in the Twenty-First Century*  
Gregory H. Nail, University of Tennessee at Martin  

*“The New 3-D Printer is Here, What do We Do Now?” Rapid Prototyping in the Undergraduate Engineering Environment*  
H. Joel Lenoir, Western Kentucky University  

*A MathCAD Function Set for Solving Thermodynamics Problems*  
Stephen T. McClain, University of Alabama at Birmingham  

**Chair:** 

L. Brent Jenkins, Southern Polytechnic State University  

**T3-D:** Software Engineering  

*Project-Based Learning of Engineering Design and Graphical Communication*  
Cecelia M. Wigal, University of Tennessee at Chattanooga  

*An Experience of a Course Management System in Construction Scheduling framed within TAC-ABET Accreditation Criteria*  
Tulio Sulbaran, University of Southern Mississippi  

**Chair:** Barbara Bernal Thomas  

**T3-E:** Industrial Engineering  

*Using Multimedia Case Studies as Teaching Aids for a Discrete Event Simulation Course*  
Scott R. Schultz, Mercer University  

*Financial Analysis of Industrial Engineering Capstone Design Projects*  
William N. Smyer, Mississippi State University.
Richard F. Smyer, Hanson Building Materials America, Inc.; and TaMesha R. Conerly, Mississippi State University
## Tuesday April 4th 2006 Technical Sessions

**Technical Session 4: 8:50 – 10:10 am**

### T4-A: Instructional Unit

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<tr>
<td>An Art Class for Engineers</td>
<td>Arthur David Snider, University of South Florida</td>
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<td>Talking &amp; Working for Diversity When You Don’t Belong to a Minority Demographic</td>
<td>Adrienne R. Minerick, Ebonye-Rosa T. Allen and Bill B. Elmore, Mississippi State University</td>
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<td>Using Case Studies to Bring Real World Situations into the Engineering Course Learning Environment</td>
<td>Thomas M. Lawrence, University of Georgia</td>
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<td>Projects and Deliverables used in a Freshman Engineering Design Course</td>
<td>Philip T. McCreanor, Mercer University</td>
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### T4-B: Engineering Technology

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<tr>
<td>Using the Great Teachers Model for Engineering Technology Faculty Renewal: A Strategy that Works</td>
<td>William L. McDaniel, Western Carolina University; Steven L. Smith, Richmond Community College</td>
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<td>Implementing a National Competition Design Project as a Capstone Course at Middle Tennessee State University</td>
<td>Saeed Foroudastan and Michael B. Anderton, Middle Tennessee State University</td>
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<td>Biomedical Engineering Technology As An Option In EET</td>
<td>Austin B. Asgill, Southern Polytechnic State University</td>
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### T4-C: Administrative Unit

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<th>Title</th>
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<tr>
<td>Development and Implementation of an Introductory Course on Engineering and Public Policy</td>
<td>Robert A. Green and Gerald A. Emison, Mississippi State University</td>
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T4-D: Engineering Design Graphics

Chair:

Multi-Media Interactive Self-directed CAD Application Tool for the Building Construction Student
Hussein F. Abaza, East Carolina University
Integrated Laboratory Instruction on CAD/CAM and Robotics at MUSE
R. Radharamanan, Mercer University

Technical Session 5: 10:30 – 11:50 am

T5-A: Instructional Unit

Chair:

Information Literacy: A Critical Component in Engineering Practice in the Twenty-First Century
Claire L. McCullough, University of Tennessee at Chattanooga
Aerospace-Focused Multidisciplinary Project-Based Introductory Engineering Course
Timothy A. Wilson, Lisa K. Davids, Charles N. Eastlake, James G. Ladesic, Farahzad Behi, Mark D. Fugler, Paul L. Quinn, Steven R. Lehr and Christopher D. Grant, Embry-Riddle Aeronautical University
USFKAD: An Expert System for Partial Differential Equations
Arthur David Snider, University of South Florida; Sami Kadamani, Hillsborough Community College

T5-B: Research

Chair:

Fulfilling Mentors’ Expectations: An REU Site Experience
Miguel A. Labrador and Rafael Pérez, University of
South Florida

Project-Based Learning: An Evaluation from Student Perspective
Chris Effiong, University of Tennessee at Martin

Increasing Student Participation in the Technical Program at Professional Conferences
David L. Silverstein, University of Kentucky

The Student Perspective on the State of Complex Systems in Australian and American Mechanical Engineering Programs
Nadia Kellam, University of South Carolina; Llewellyn Mann, University of Queensland; Veronica Addison, University of South Carolina; Michelle Maher, University of South Carolina; David Radcliffe, University of Queensland; Wally Peters, University of South Carolina

T5-C: Mechanical Engineering

Effect of Boundary Conditions on Two-Dimensional Temperature Distribution in a Transformer
P. S. Yeh, Jacksonville State University

Introducing Space Exploration into Engineering Curricula
John Baker, University of Alabama

Effectiveness and LMTD Correction Factor of the Cross Flow Exchanger: A Simplified and Unified Treatment
Sheldon M. Jeter, Georgia Institute of Technology