

Friday, October 14

10:15 - 11:30 am

Session 1

Kirby Ballroom A

Session Chair Daniel Pope

10:15-10:30 **Student-Designed Projects in Computational Fluid Dynamics: Challenges and Results**, Daniel N. Pope, University of Minnesota Duluth

10:30-10:45 **Simplify Uncertainty Analysis Using Excel Macros**, Richard A. Davis, University of Minnesota Duluth

10:45-11:00 **Numerical Methods and Simulation Instruction Distributed Through the ChEn Curriculum**, Jeffrey J. Derby, Satish Kumar, Prodromos Daoutidis, Kevin D. Dorfman and Alon V. McCormick, University of Minnesota - Twin Cities

11:00-11:15 **Principles of Particle Technology: Philosophy, Topics & Experiments**, Keith B. Lodge, University of Minnesota Duluth

11:15-11:30 **Alternative Formative Assessments to Enhance Conceptual Knowledge Transfer in the Topic of Buoyancy: a Pilot Study**, Derek Wissmiller, University of Wisconsin Stout

Kirby Ballroom C

Session Chair David Saftner

10:15-10:30 **What is Involved in Establishing a New Engineering Program? An Update on the New Computer Engineering Program at UW-Stout**, Robert Nelson, University of Wisconsin-Stout

10:30-10:45 **The Implications of ASME Vision 2030 for Mechanical Engineering Programs**, Ryan G. Rosandich, University of Minnesota Duluth

10:45-11:00 **Mind Trekkers Science and Engineering Festivals: Inspiring K-12 students to explore STEM**, Stephen Patchin, Cody Kangas, Jamie Lindquist, Michigan Technological University

11:00-11:15 **Learning Structural Analysis in "A Building that Teaches"**, Katherine A. Acton, University of Minnesota Duluth

11:15-11:30 **ADVANCE: An investigation of the representation of female faculty candidates at Michigan Technological University**, Lisa Watrous, Mari Buche, Susan Bagley, Jason Keith, Michigan Technological University

Friday, October 14

1:20 - 2:35 pm

Session 2

Kirby Ballroom A

Session Chair Katherine Acton

1:20-1:35 **Learning Through Service: Student Motivations**, Kurt Paterson, Michigan Technological University

1:35-1:50 **Preparing the Best Future Engineers through Improved Teaching Methods**, Genevieve Gagnon, University of St. Thomas

1:50-2:05 **Academic Integrity in the Classroom**, Steve Sternberg, University Minnesota Duluth

2:05-2:20 **The Engineering Advisory Committee – One Solution Closing the Gap in the Iron Range’s Engineering Education: K-14**, Carl Sandness, Tom Jamar, Roy Smith, J. Moe Benda, University of Minnesota Duluth

2:20-2:35 **Student Attitudes on a Collaborative Undergraduate Engineering Program between the USA and China**, Lisa Anneberg, Lawrence Technological University, Jiao Luo, Suyun Luo, Shanghai University of Engineering Science

Kirby Ballroom C

Session Chair Christopher Carroll

1:20-1:35 **The Graduate Course in Electromagnetics: Integrating the Past, Present and Future**, David Rogers, North Dakota State University

1:35-1:50 **Introducing Software Engineering to General Engineering Students**, Mike Rowe, University of Wisconsin-Platteville

1:50-2:05 **Adapting Digital Design Instruction to a Programmable Logic Device Setting**, Christopher R. Carroll, University of Minnesota Duluth

2:05-2:20 **Fourier Workbench**, Ahmet Turkmen, Jon Breen, University of Wisconsin-Stout

2:20-2:35 **Integrating Energy Modeling Software into Sustainable Energy Systems Curriculum**, Alison B. Hoxie, University of Minnesota Duluth

Friday, October 14

3:00 - 4:15 pm

Session 3

Kirby Ballroom A

Session Chair Emmanuel Enemuoh

3:00-3:15 **Development and Delivery of a Project-Based Introductory Engineering Course for Online Delivery**, Christa James-Byrnes, University of Wisconsin-Barron County, Mark Holdhusen, University of Wisconsin-Marathon County

3:15-3:30 **Development of Freshman Seminar Design Project**, Eric Musselman, University of Minnesota Duluth

3:30-3:45 **Case-Based Learning: A Creative Experience in Comparison to Traditional Teaching Methods**, Waddah Akili, Ph.D., PE

3:45-4:00 **The Role of Adjunct Faculty in Undergraduate Engineering Education: A Cohort Needed to Enhance the Practice**, Waddah Akili, Ph.D., P.E.

4:00-4:15 **Integrating Study Abroad Experience with Teaching Sustainability Course in Africa**, Emmanuel U. Enemuoh, University of Minnesota Duluth, Samuel Kwofie, Kwame Nkrumah University of Science and Technology

Kirby Ballroom C

Session Chair Stanley Burns

3:00-3:15 **Curriculum Assessment Using Professional Certification Criteria**, Robert G. Feyen, University of Minnesota Duluth

3:15-3:30 **Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course**, Byron Garry, South Dakota State University

3:30-3:45 **Assessing Experimental Design in Civil Engineering**, Nathan W. Johnson, University of Minnesota Duluth

3:45-4:00 **Streamlining Program Assessment for ABET: What to Do with All that Data**, James D. Allert, University of Minnesota Duluth

4:00-4:15 **Personality Type Demographics and their Relationship to Teaching and Learning**, P. B. Ravikumar, University of Wisconsin-Platteville

Saturday, October 15

8:30 – 10:00 am

Session 4

Kirby Ballroom A

Session Chair Eshan Dave

8:30-8:45 **Family Engineering for Elementary-Aged Children and Their Parents**, Neil J. Hutzler, Michigan Technological University

8:45-9:00 **Development of Infrastructure Materials Course for Undergraduate Students in Civil Engineering**, Eshan V. Dave, University of Minnesota Duluth

9:00-9:15 **Project Cam-A-Rok, Engaging Mechanical Engineering Freshman**, William C. Farrow, Milwaukee School of Engineering

9:15-9:30 **Fuzzy Versus Conventional Control**, M. S. Stachowicz, University of Minnesota Duluth

9:30-9:45 **Problem Based Learning Principles for Final Projects with Soft Evaluation**, L. B. Kofoed, Aalborg University, Denmark, M. S. Stachowicz, University of Minnesota Duluth

Kirby Ballroom C

Session Chair Michael Rother

8:30-8:45 **A Nanotechnology Module within the Current Course in Engineering Economy**, Bidhan Roy, University of Wisconsin-Platteville

8:45-9:00 **Emphasizing Environmental Health and Safety Training in all Aspects of the Emerging Nanotechnology Field**, Seraphin C. Abou, University of Minnesota Duluth

9:00-9:15 **Design with Sustainability Analysis: Case Study of Renewable Bicycle Frame**, Emmanuel U. Enemuoh, University of Minnesota Duluth, Samuel Kwofie, Kwame Nkrumah University of Science and Technology

9:15-9:30 **Keeping an Engineering Economy Course In-line With the Practice of Engineering**, William R. Peterson, Guanghsu Chang, Minnesota State University, Mankato

9:30-9:45 **Engineering Targeted Project Design in Kinematics and Control Classes**, Debao Zhou, University of Minnesota Duluth

9:45-10:00 **Academic Versus Industrial Senior Design Projects**, Michael A. Rother, University of Minnesota Duluth