A. 3-D Simulation of an Axial and Thrust Bearing Halbach Array
   Mike Wright, Timothy Sichler
   Penn State University

B. An Applied Approach to Teaching Modern Power Electronics
   Raghav Khanna
   University of Toledo

C. Co-Curricular Engagement to Build Leadership in Sustainability
   Peter Mark Jansson, Neil M. Boyd
   College of Engineering and the School of Management - Bucknell University

D. Design ethnography: Why should it matter to your students (and you)
   Heather L. Lai
   SUNY New Paltz

E. Developing a Decision Matrix for Data Sharing and Storage
   Linda Musser
   Pennsylvania State University

F. Developing Representations to Scaffold Capstone Design
   R. Alan Cheville, Michael S. Thompson
   Bucknell University

G. The Engineering Success Alliance: Increasing Persistence and Success in Engineering Through Academic Support and Community
   Karen T. Marosi
   Bucknell University

H. Implementing Mastery-Based Education Within an Adaptive Instructional Tool
   Richard C Simpson, PhD
   New York Institute of Technology

I. Integrating GIS into Civil Engineering through Pedagogy and Scholarship
   Janine Glathar, Michelle Oswald Beiler, and Kevin Gilmore
   Bucknell University

J. Ordering Components of a Class Session: Application of Literature to Design of a Module on Analysis and Modeling of Dynamical Systems in Biology
   Alex C. Szatm
   National Institute of Child Health and Human Development

K. The “Real-World” Senior Capstone Design Projects
   Julie Wang
   Frostburg State University

L. Reviewing a Capstone Design Sequence in Response to Program Growth
   Profs. Wayne Blanding, Scott Kiefer, Kala Meah, and Tristan Ericson
   York College of Pennsylvania

M. A System Approach in Energy Engineering Curriculum
   Oguz Soysal
N. Uncovering Elementary Teachers’ Notions of Science and Engineering Design Practices Using Video Captured Instruction  
   Dr. Augusto Z. Macalalag Jr., Kate Peterson  
   Arcadia University

O. Undergraduate Research Experience in First Year Seminar courses – A student’s perspective  
   Tyler Moser, Rungun Nathan, Barbara Mizdai  
   Penn State Berks

P. Using Problem-based Learning to Introduce Middle School Students to Engineering and the Engineering Design Process  
   Linda S. Hirsch, Ed.D.  
   Center for Pre-College Programs, New Jersey Institute of Technology

Q. Using real-world data in hydrology education: Computing volumetric runoff coefficient using real-world rainfall and streamflow  
   Kirk R. Barrett, PhD, PE  
   Manhattan College

R. Video Self-Explanations of Emergent Electromagnetic Concepts  
   Brianna Derr, R. Alan Cheville  
   Bucknell University

Session 2a 11:30am – 12:30pm  
Center Room, Elaine Langone Center (256)

Session Chairs: Oguz Soysal (Frostburg State University), James VanFleet (Bucknell University)

A. Synthesis Digital Library: Innovative Information Service for Engineering and Computer Science  
   Brent Beckley  
   Morgan & Claypool Publishers

B. A Potential Solution for Textbook Affordability  
   Ashwin Satyanarayana, Tatiana Malynna, Hong Li  
   New York City College of Technology (CUNY)

C. Information Literacy for Engineering Students  
   James VanFleet, Nancy Frazier, Kathleen McQuiston  
   Bucknell University

Session 2b 11:30am – 12:30pm  
217 Elaine Langone Center

Session Chairs: Margaret Wismer (Bloomsburg University), J. Kemi Ladeji-Osias (Morgan State University)

A. Building Community Relationships with a Senior Design Experience  
   Scott Kiefer, Kala Meah, James Moscola, and Tristan Ericson  
   York College of Pennsylvania

B. Teamwork Peer Assessment Based on the Model of Domain Learning  
   Abdullah Konak  
   Penn State Berks

C. An Evaluation of Music Technology Curriculum in Selected Colleges
D. Basic Electronics for Liberal Arts Majors
   Margaret G. Wismer
   Bloomsburg University

Session 2c 11:30am – 12:30pm 241AB Elaine Langone Center
Session Chairs: Linda Musser (Pennsylvania State University), Wenli Huang (US Military Academy)

A. Providing Complementary Viewpoints of Healthcare Technology Through An Interdisciplinary Learning Experience
   Lunal Khuon, Vladimir Genis, Andrew Rich, Arlene Solnick, John Cornele, Melanie Whitehead, and Michael Hunn
   College of Engineering, Drexel University, College of Engineering, Drexel University, Children’s Hospital of Philadelphia, College of Nursing and Health Professions, Drexel University, College of Nursing and Health Professions, Drexel University, Draeger Medical Systems Inc.

B. Retaining Women Engineering Faculty – What Do We Know?
   Linda R. Musser
   Pennsylvania State University

C. In Progress: A Working Model to Demonstrate Combined Heat and Power
   Christian Rogerson (student), Dr. Brian Swartz
   Messiah College

D. Rapid Prototyping of Metalenses Using a Focused Beam
   Michael Shares, Zachary Lemke, Caitlin Kneapler, Kirk Ingold, Brian Souhan
   United States Military Academy

Session 2d 11:30am – 12:30pm 241CD Elaine Langone Center
Session Chairs: Suzanne Keilson (Loyola University Maryland), Julie Wang (Frostburg State University)

A. Calculus Without Limits
   Andrew Grossfield, PhD., PE
   Vaughn College

B. Engineering in a First Year Seminar and Student Development Program
   Suzanne Keilson
   Loyola University Maryland

C. Can Engineering Students’ Teamwork Skills Be Improved?
   Sadan Kulturel-Konak
   Penn State Berks

D. Constructing K-12 STEM Outreach Utilizing Active Learning Methods: Invention and Innovation Workshop Case Study
   Ralph C. Tillinghast, COL (Ret) Edward A. Petersen, Anthony R. Ur
   Armaments Research Development Engineering Center (ARDEC), U.S. Army, Picatinny Arsenal, N.J.

Session 3a 2:00pm – 3:00pm 217 Elaine Langone Center
Session Chairs: Rungun Nathan (Penn State Berks), Joseph Tranquillo (Bucknell University)

A. Engineering The UN Post 2015 Sustainable Development Goals
William E Kelly  
George Mason University

B. Energy Week: Outreach Events Geared Toward High School and Middle School Students  
Tony Kerzmann, David Sanchez, Jonathan Bach, John Walker  
Robert Morris University, University of Pittsburgh, Robert Morris University, University of Pittsburgh

C. A Vision for the Institute for Leadership in Technology And Management  
Joe Tranquillo, Eric Santanen, Doug Allen  
Bucknell University

D. The Grand Challenges Scholars Program at Bucknell University  
James A. Van Fleet, Dr. T. Michael Toole  
Bucknell University

Session 3b 2:00pm – 3:00pm  241CD Elaine Langone Center  
Session Chairs: Thomas Ask (Pennsylvania College of Technology), Nathan Siegel (Bucknell University)

A. Filling the Gap: Philosophical Foundations of the Maker Movement  
Thomas Ask  
Pennsylvania College of Technology

B. Minority Male Maker Program: Encouraging STEM Interest and Creativity in Middle School Boys  
Jumoke O. Ladej-Osias, LaDawn Partlow, Monique Head, Roshan Paudel, Jonathan Farley and Omar Muhammed  
Morgan State University

C. The Maker Movement at Bucknell: A Plan for Developing, Launching, and Managing On-Campus MakerSpaces  
Diego Aldana, Alan Cheville, Gretchen Hueges, Joe Meiser, Nathan Siegel, Margot Vigeant  
Bucknell University