American Society for Engineering Education

and

Fred DeMatteis School of Engineering and Applied Science

present the

Fall 2016 ASEE Mid-Atlantic Regional Conference

Friday and Saturday, **October 21-22, 2016**
Hofstra University, Hempstead, NY

Day	Time	Event		
Fri Oct 21	2-7 p.m.	**Registration/Check-In** **100A Weed Hall**		
	3:30-5:30 p.m.	**Workshop A** ***Elliot Douglas, NSF*** NSF Funding Opportunities in Engineering Education 202 Adams Hall	**Workshop B** ***Kevin Craig*** Mechatronics Workshop 113 Adams Hall	**Workshop C** ***Mauro Caputi*** Who Thought First-Year Engineering Could Be Hilarious? 204 Weed Hall/ 014 Adams Hall
	5:30-6:30 p.m.	**Mid-Atlantic ASEE Executive Board Meeting** Hofstra University Club – Netherlands Room		
	7-8:30 p.m.	**Dinner** Hofstra University Club – Unispan Room		
Sat Oct 22	8 a.m.-12:30 p.m.	**Registration/Check-In**		
	9-10 a.m.	**Keynote Speaker: *Joseph Sussman*** ABET and the Evolution of Engineering Education 106 Breslin Hall		
	10-10:15 a.m.	Break		
	10:15-11:15 a.m.	**Paper Session 1A** 216 Breslin Hall	**Paper Session 1B** 217 Breslin Hall	**Paper Session 1C** 209 Breslin Hall
	11:15-11:30 a.m.	Break		
	11:30 a.m.-12:30p.m.	**Paper Session 2A** 216 Breslin Hall	**Paper Session 2B** 217 Breslin Hall	**Paper Session 2C** 209 Breslin Hall
	12:30-1:30 p.m.	**Lunch** Breslin Hall		
	1:30-2:30 p.m.	**Paper Session 3A** 216 Breslin Hall	**Paper Session 3B** 217 Breslin Hall	**Paper Session 3C** 209 Breslin Hall
	2:30-2:45 p.m.	Break		
	2:45-3:45 p.m.	**Paper Session 4A** 216 Breslin Hall	**Paper Session 4B** 217 Breslin Hall	
	3:45-4 p.m.	**Adjournment**		

FRIDAY, OCTOBER 21, 2016

Workshop A **3:30-5:30pm** **Adams Hall Room 202**

Elliot P. Douglas
Program Director for Engineering Education, National Science Foundation

Many faculty have ideas for new education projects but may not be sure of how to turn that idea into a fundable proposal. This interactive workshop will help engineering faculty understand the elements of a competitive proposal and get them started on preparing a proposal for submission. It will cover key elements of proposals, helpful hints and fatal flaws, and how the submission and review process works. This workshop will also describe current opportunities for funding of engineering education projects available through the National Science Foundation. NSF education programs span the range from foundational to scale-up research, and include opportunities for investigators new to educational research. There are also programs intended to support institutional change efforts.

Workshop B **3:30-5:30pm** **Adams Hall Room 113**

Kevin Craig
Professor of Mechanical Engineering, Fred DeMatteis School of Engineering and Applied Science, Hofstra University

A highly effective method for providing instruction in the rapidly growing field of mechatronics is to utilize studio-based, project oriented lessons which allow students to experience some of the multifaceted issues involved in mechatronics. This workshop will demonstrate examples of this teaching approach which can be utilized at all four years of an undergraduate engineering curriculum. For example, the first-year students can be exposed to base mechatronic functionality. Second-year students can model the physical and electrical dynamics of systems. Third-year students can create designs based on the feedback control law. Finally, fourth-year students can participate in redesign of a mechatronic system, including dimensioning, component selection, and 360° optimization. Workshop participants will assemble and operate example mechatronics systems and receive details for teaching the design of these systems at their home institutions.

Kevin Craig, *Professor, Engineering*
Kevin Craig graduated from the United States Military Academy at West Point, NY, with a B.S. degree and a commission as an officer in the U.S. Army. He received the M.S., M.Phil., and Ph.D. degrees from Columbia University, NY. He worked in the mechanical-nuclear design department of Ebasco Services, Inc., and as a research engineer at the U.S. Army Armament Research, Development, and Engineering Center (ARDEC) Automation and Robotics Laboratory. In 1989, he joined the faculty at Rensselaer Polytechnic Institute (RPI). As a tenured full professor of mechanical engineering, he developed the Mechatronics Program at RPI and taught and performed research in the areas of mechatronic system design and the modeling, analysis, and control of multidisciplinary engineering systems. He collaborated extensively with the Xerox Mechanical Engineering Sciences Laboratory (MESL), an offshoot of Xerox PARC. During his 18 years at RPI, he graduated 20 Ph.D. students. At RPI, he received the two highest awards conferred for teaching: the 2006 School of Engineering Education Excellence Award and the 2006 Trustees' Outstanding Teacher Award.

Over the past 20 years, he has conducted hands-on, integrated, customized, mechatronics workshops for practicing engineers nationally and internationally. He is a Fellow of the ASME and a member of the IEEE and ASEE. He was given the 2014 ASME Outstanding Design Educator Award, a society award.
In the fall of 2014, Dr. Craig came to the Hofstra University School of Engineering and Applied Science as a tenured full professor of mechanical engineering. He is the Director of the Mechatronics Laboratory, and also the Director of the Center for Innovation, a new center he created to collaborate with business and industry to foster innovation, where all intellectual property (IP) belongs to the sponsor.

Workshop C 3:30-5:30pm **Weed Hall Room 204 (first hour)/ Adams Hall 014 (second hour)**

Who Thought First-Year Engineering Could Be Hilarious?

Mauro J. Caputi

Associate Professor of Electrical Engineering, Director of Freshman Engineering, Fred DeMatteis School of Engineering and Applied Science, Hofstra University

Can a love of TV, movies, and teaching engineering be combined with an outgoing and humorous personality to produce a First-Year Engineering Design class that is entertaining as well as educational? That's just what happened when Dr. Caputi decided to conduct his ENGG 15 lecture class as if it were a live TV show. He facilitates the course in an engaging and humorous style to allow the students to have a great deal of fun while actively learning and experiencing the three main areas of study: the Informed Design Process, Teamwork, and Communication. Why not see for yourself how Dr. Caputi is developing innovative ways to make Engineering classes accessible and fun for all.

Mauro J. Caputi, *Associate Professor, Engineering*

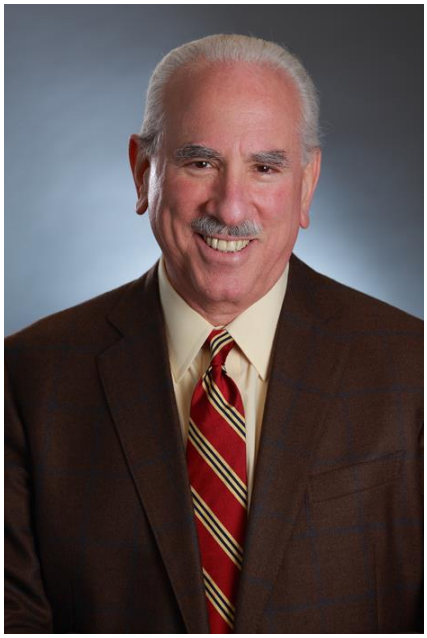
Dr. Caputi received his Ph.D. and M.S. in Electrical Engineering from Virginia Tech, and his B.S. in Electrical Engineering from Manhattan College. This year 2016 marks 32 years of enthusiastic teaching and humorous interaction with undergraduate students at three outstanding schools: Virginia Tech for seven years, the University of the Pacific for one year, and Hofstra University for twenty-four years. Since 2004 his major focus has been to provide First-Year Engineering students with an engaging, memorable “live television show” classroom and laboratory experience using extensive multimedia, classic storytelling methods, and a comedic stage presence. Appointed Director of Freshman Engineering in 2013, and selected as a recipient of the 2014 Distinguished Teacher of the Year Award, Dr. Caputi continues to vigorously explore new ways of infusing his students with both theory and hands-on experience of introductory engineering design, teamwork, and communication.

SATURDAY, OCTOBER 22, 2016

Keynote Speaker **9:00-10:00am** **Breslin Hall Room 105**

ABET and the Evolution of Engineering Education

Joseph L. Sussman
Chief Accreditation Officer, Chief Information Officer, ABET



Dr. Joe Sussman is both Chief Accreditation Officer and Chief Information Officer for ABET, the recognized accreditor for college and university technical education programs in applied science, computing, engineering, and engineering technology worldwide. In this role since 2011, Dr. Sussman leads ABET's global accreditation operations, collaborating with the organization's volunteer leadership in both tactical execution and strategic development of ABET's accreditation practice.

Prior to joining ABET, Dr. Sussman spent 26 years as an engineering leader and senior business executive at Bayer AG, leading many of the company's quality, manufacturing, and IT efforts. After retiring from Bayer Joe became an Industry Specialist at Deloitte Consulting, where he worked with many prominent global clients.

In addition to his impressive industry background, and prior to joining ABET staff, Joe served ABET for 24 years in nearly every volunteer capacity, including:

* Program Evaluator for mechanical engineering programs,
* Chair of the Engineering Accreditation Commission,
* Representative Director from ASME on the ABET Board of Directors,
* ABET President for 2008-2009.

Dr. Sussman was inducted as an ABET Fellow in 2002 after having played a pivotal role in implementing the ground-breaking Engineering Criteria 2000. In 2011 the ASME Board of Governors elected Dr. Sussman an ASME Fellow for his contributions to quality in engineering education.

In 2015 Dr. Sussman was presented the Linton E. Grinter Distinguished Service Award as an ABET expert who followed in Grinter's footsteps, making outstanding contributions to the technical disciplines through his work in accreditation.

Dr. Sussman earned his baccalaureate, master's, and doctoral degrees in mechanical engineering from Columbia University in the City of New York.

Session 1A: STEM Education 10:15-11:15am Breslin Hall Room 216

A. The Partnership of University, Industry and K-12 Schools to Improve Awareness of STEM Fields
Rajarajan Subramanian, Shirley Clark
Pennsylvania State University at Harrisburg

B. Teaching Robotics to High School Students
Hamid Namdar
Queensborough Community College

C. A Research-Based Assignment in a Course on Communication Systems to Infuse Technology Applications in Humanitarian Action
Uma Balaji
Fairfield University

Session 1B: Innovative Teaching Methods 10:15-11:15am Breslin Hall Room 217

A. Assessing Students' Perceptions of Learning at Undergraduate Sophomore Level in Mechanical Engineering Curriculum
Anahid Ebrahimi, Jenni Buckley, Amy Trauth-Nare, Jill Higginson
University of Delaware

B. Assessment of Student Ability to Identify Engineering Problems
Matthew Armstrong, Geoffrey Bull, A. Biaglow
United States Military Academy

C. Writing-to-Learn Exercises to Improve Student Understanding and Metacognition in an Engineering Statics Course
Saryn Goldberg, Jennifer Rich, Amy Masnick, Benjamin Lutz, Cassandra Groen, Marie Paretti, Lisa McNair
Hofstra University

Session 1C: First-Year Education 10:15-11:15am Breslin Hall Room 209

A. Libraries as Collaborative Game Spaces: Engineering Academic Challenge
Daniel Christe, Savannah Lee, Rishiraj Mathur, Krzyzstof Mazur, Aakankschit Nandkeolyar, Krishna Dhanani, Jay Bhatt
Drexel University

B. New Introduction to Infrastructure Course at Rowan University
Ralph Dusseau, Jenahvive Morgan, Joseph Daraio
Rowan University

C. Interest in Engineering: Importance of Classroom Experiences
Sai Sadhika Veeramachaneni, Oyemayowa Abioye, Anika Coolbaugh, Lizzie Y. Santiago
West Virginia University

Session 2A: STEM Education 11:30am-12:30pm Breslin Hall Room 216

A. Measuring Technology and Engineering Literacy on the Nation's Report Card
William Ward
National Center For Education Statistics

B. An Outlook on the Future of Packaging: a New Project Based Method for Engineering in STEM
Kim Smith, David Tonjes
Stony Brook University, SUNY

C. Stimulation of Scientific Interest and Higher Confidence through the Engineering Ambassador Programs Experience
Claudia Marin-Artieda, M. Mosleh
Howard University

Session 2B: Innovative Teaching Methods 11:30am-12:30pm Breslin Hall Room 217

A. Using Google Analytics to Improve the Course Website of a Database Course
Abdullah Konak, Brittney Romanowski
Pennsylvania State University- Berks Campus

B. Constructing a Model for the Definition and Assessment of Teaching Effectiveness in Higher Education
Jerry-Darryl Fletcher, Yacob Astatke, LeeRoy Bronner, Odesma Dalrymple
Morgan State University

C. Presenting Historic Individuals in Engineering Education
Harley Hartman
Pennsylvania State University – York Campus

Session 2C: Assessment Issues 11:30am-12:30pm Breslin Hall Room 209

A. Design and Administration of Interdisciplinary Community Development Service-Learning Programs
Thomas Soerens, F.G. Edwards, and A. Farmer
Messiah College

B. Call for Change: Using Lean to Add Value Back to Higher Education
Brian Galli
Long Island University – CW Post

C. Program Level Assessment In the Context of ABET Accreditation
Amit Bandyopadhyay
Farmingdale State College, SUNY

Session 3A: STEM Education 1:30-2:30pm Breslin Hall Room 216

A. Mining Student Data by Ensemble Classification and Clustering for Profiling and Prediction of Student Academic Performance

Ashwin Satyanarayana, Gayathri Ravichandran

New York City College of Technology

B. Raising Interest in STEM Education (RISE): Community College-University Partnership for Engaging Minorities in STEM

Daniel Christe, Brian Wisner, Jay Bhatt, Antonios Kontsos

Drexel University

C. Introducing Matrix Analysis Concepts to Elementary School Students

Richard Aston

East Tennessee State University

Session 3B: Novel Research Work 1:30-2:30pm Breslin Hall Room 217

A. Using the Fundamentals of Engineering Exam to Assess Student Performance in a Chemical Engineering Curriculum

Geoffrey Bull, Matthew Armstrong, A. Biaglow

United States Military Academy

B. Learning By Research: A Review of Undergraduate Research Experiences in the School of Engineering Technology

Gonca Altuger-Genc, Marjaneh Issapour, Bahar Zoghi, Mihaela Radu, Jeff Hung, Nazrul Islam, Hamid Ghadyani

Farmingdale State College, SUNY

C. Development of an Assessment Tool to Probe Students' Understanding of Measurement Uncertainty

Johannes Schulz, Burkhard Priemer

Humboldt-Universität zu Berlin

Session 3C: Assessment Issues 1:30-2:30pm Breslin Hall Room 209

A. Assessing Engineering and Technology Students' Global Awareness: Interest, Knowledge and Strategic Processing

Sadan Kulturel-Konak, Abdullah Konak

Pennsylvania State University- Berks Campus

B. Moral Foundations of the Engineering Profession

Harold Walker

Stony Brook University, SUNY

C. Enhancing Course Learning Outcomes Through Partnerships with Field Experts

Yaomin Dong

Kettering University

Session 4A: Innovative Teaching Methods 2:45-3:45pm Breslin Hall Room 216

A. Integrating Solar Cells Simulation Software in Undergraduate Engineering Classes
Amal Kabalan, Sam Roy
Bucknell University

B. Improvement of the Electrical and Control Systems for an Underwater Remotely Operated Vehicle
Cheryl Li, Victor Miller
University of New Haven

C. Multiphoton Microscopy: Programmable Supercontinuum Pulses
Rayan Albokhari, Jihan Hassas, Joseph Shahbazian
Wentworth Institute of Technology

Session 4B: Novel Research Work 2:45-3:45pm Breslin Hall Room 217

A. An Intelligent Clustering Algorithm for High Dimensional and Highly Overlapped Photo-Thermal Infrared Imaging Data
Nian Zhang, Lara Thompson
University of the District of Columbia

B. Involving Undergraduate Students in Research through the Development of Low-Cost Optical Instrumentation
James Scire
New York Institute of Technology

C. Implementing Self Learning Skills With Multidisciplinary Robotics Courses
Akin Tatoglu, Ingrid Russell
University of Hartford