

**EMBRACING DIVERSITY IN LEARNING:
THE CHALLENGE FOR ENGINEERING EDUCATION
Spring 2007 ASEE Mid-Atlantic Section Conference
April 13 and 14, 2007
New Jersey Institute of Technology**

**SCHEDULE OF EVENTS
(All events take place in the NJIT Campus Center)**

FRIDAY, APRIL 13, 2007

- 12:00 – 2:00 p.m.** Registration & Viewing of Student Poster Presentations by McNair Scholars
- 2:00 – 3:15 p.m.** **Ballroom A**
Engineering Deans Panel Discussion
“Recruiting a Diverse Population in Engineering”
- 3:30 – 5:00 p.m.** **Ballroom A**
Special Presentation
*“What the ‘Millennial’ Generation Expects from Colleges:
Are Engineering Students Any Different?”*
Richard Sweeney, New Jersey Institute of Technology
- 5:00 – 6:30 p.m.** **City & Campus Tours**
Visiting Exhibitors’ Booths
- 5:00 – 6:30 p.m.** **Murray Women’s Center Conference Room (Room 290)**
Mid-Atlantic ASEE Executive Committee Meeting
- 6:30 – 9:30 p.m.** **Atrium Lounge**
Gala Dinner featuring welcoming remarks from
Robert A. Altenkirch, President,
New Jersey Institute of Technology

SATURDAY, APRIL 14, 2007

7:30 – 8:30 a.m. Registration & Breakfast (Ballroom B)

8:30 a.m. – day Visiting Exhibitors' Booths

8:30 – 8:45 a.m. Ballroom A
Welcoming Remarks from
Priscilla Nelson, Provost,
New Jersey Institute of Technology
John Schuring, Acting Dean,
Newark College of Engineering,
New Jersey Institute of Technology

8:45 – 9:30 a.m. Ballroom A
Plenary Lecture by Ilene Busch-Vishniac,
Johns Hopkins University,
“The Role of Curriculum in Enhancing Diversity in Undergraduate Engineering Programs”

9:45 – 11:45 a.m. Parallel Sessions/Contributed Papers

SESSION 1: DIVERSITY ISSUES IN ENGINEERING EDUCATION I

Chair: R. Engel, Penn State University
Room 240

9:45 a.m. *Introductory Remarks*

9:50 a.m. Paper 1 – a:
Impediments to Increasing Diversity in Post-secondary Education. C.S. Johnson.
New Jersey Institute of Technology.

10:10 a.m. Paper 1 – b:
Enrollment of Women in Undergraduate Civil Engineering Programs. P. Johnson.
Penn State University.

10:30 a.m. Paper 1 – c:
Equal Opportunity in Engineering Education. H.A. Kalhor. State University of
New York, New Paltz.

10:50 a.m. *Break*

11:00 a.m. Paper 1 – d:
African–American Engineers: Social and Cultural Solutions for Underrepresentation. L. Rollins-Haynes, Orange County Community College, Middletown, NY; and LTC K.L. Haynes, United States Military Academy.

11:20 a.m. Paper: 1 – e:
Libraries 101 for International Students. A. Popescu. Princeton University.

11:40 *Concluding Remarks*

**SESSION 2: INNOVATIVE APPROACHES TO ENGINEERING EDUCATION
AND ASSESSMENT I**

**Chair: K. Ladeji-Osias, Morgan State University
Room 225**

9:45 a.m. *Introductory Remarks*

9:50 a.m. Paper 2 – a:
What Students Say are the Top Engineering Challenges of the Future. S. Freyne.
Manhattan College.

10:10 a.m. Paper 2 – b:
Information Disclosure Incidents and Computing Education. S.A. Robila.
Montclair State University.

10:30 a.m. Paper 2 – c:
Assessment and Improvement – Defining Best Practices. W.E. Kelly. The
Catholic University of America.

10:50 a.m. *Break*

11:00 a.m. Paper 2 – d:
Ethics at Various Engineering Programs. A. Kuzmar. Penn State University,
Fayette.

11:20 a.m. Paper 2 – e:
Developing Methods for Assessing (Diverse) Lifelong Learning Skills. S. Slonim
and R. Puerzer. Hofstra University.

11:40 a.m. *Concluding Remarks*

SESSION 3: ATTRACTING PRE – COLLEGE STUDENTS TO ENGINEERING

**Chair: K. Jahan, Rowan University
Room 235**

9:45 a.m. *Introductory Remarks*

9:50 a.m. Paper 3 – a:
Engineering our Future New Jersey: Partnerships, the Critical Element. E.
McGrath and D. Schultz. Stevens Institute of Technology.

10:10 a.m. Paper 3 – b:
The K–16 Engineering Pipeline: A Working Model. H. Kimmel, J. Carpinelli, R. Cano, and A. Perna. New Jersey Institute of Technology.

10:30 a.m. Paper 3 – c:
Student Enrollment at a Large Technical University: Encouraging Women to Enter the Engineering Profession. V. Briller, E. Dees, R. Calluori, and K. Joshi. New Jersey Institute of Technology.

10:50 a.m. *Break*

11:00 a.m. Paper 3 – d:
Camp Pharma: A Novel Initiative to Generate a Pipeline of Diverse Student Talents in Pharmaceutical Manufacturing. L. Simon, P. Armenante, and R. Dave. New Jersey Institute of Technology.

11:20 a.m. Paper 3 – e:
Engineering Clinics for Teachers. K. Jahan and K. Sernak. Rowan University.

11:40 a.m. *Concluding Remarks*

SESSION 4: PARTNERSHIPS WITH INDUSTRY AND FEDERAL AGENCIES
Chair: J.C. Giordano, United States Military Academy
Room 220

9:45 a.m. *Introductory Remarks*

9:50 a.m. Paper 4 – a:
Sponsored Industrial Research Experiences for Undergraduate Students: Student Perspectives on Collaborative Projects with Pharmaceutical Industry. L. Kuczynski, C. McGuinness, S. Farrell, B.G. Lefebvre, and C.S. Slater. Rowan University.

10:10 a.m. Paper 4 – b:
Engineering Success & Successful Engineering: A West Point Cadet Project with NASA Illustrates the Value of Diversity. L. Harrington, A. Bartlett, Q. Willard, J. McKay, B. Brown, and E. Wong. United States Military Academy.

10:30 a.m. Paper 4 – c:
NSF–Research Experience for Undergraduates in Engineered Nano-Composite Particulate Materials at NJIT. K.A. Narh and R.N. Dave. New Jersey Institute of Technology.

10:50 a.m. *Break*

11:00 a.m. Paper 4 – d:
An Innovative Outreach Program on Mechanical Contracting for College–Bound High School Students. F. Oncul, Fairleigh Dickinson, University; M. Drobny, MCA-NJ; M. Lewis, Fairleigh Dickinson University; and F. Apaydin, Robert Director Associates, New York.

11:20 a.m. Paper 4 – e:
Sponsored Industrial Research Experiences for Undergraduate Students: Perspectives on Collaborative Projects with Petrochemical Industry. S. Farrell. Rowan University.

11:40 a.m. *Concluding Remarks*

SESSION 5: DESIGN AND LABORATORY EXPERIENCES

Chair: A. Ortega, Villanova University

Room 215

9:45 a.m. *Introductory Remarks*

9:50 a.m. Paper 5 – a:
A New Freshmen Engineering Design Experience in Chemical Engineering at NJIT. R. Barat, G. DiBenedetto, and T. Boland. New Jersey Institute of Technology.

10:10 a.m. Paper 5 – b:
Use of Knowledge and Skill Builders (KSBs) in a Measurements Laboratory Course. C.H. Forsberg. Hofstra University.

10:30 a.m. Paper 5 – c:
Designing a Multi–Disciplinary Hybrid Vehicle Systems Course Curriculum Suitable for Multiple Departments. V. Winstead, Minnesota State University, Mankato.

10:50 a.m. *Break*

11:00 a.m. Paper 5 – d:
An Experimental Process Course. G. Walker. Manhattan College.

11:20 a.m. Paper 5 – e:
Modifying the Existing Non–invasive Optical Glucose Sensing Device and Demonstrating the Optical Rotatory Effect of glucose in the presence of Glucose Medium. S. Jang, R. Russo, and H. Li. New York City College of Technology of CUNY.

11:40 a.m. *Concluding Remarks*

12:00 – 1:00 p.m. Ballroom B
Lunch & Mid-Atlantic ASEE Business Meeting

1:15 – 2:00 p.m. Ballroom A
Plenary Lecture by Allen L. Soyster,
National Science Foundation
“What is the ‘Business Model’ for Engineering Education?”

2:15 – 4:15 p.m. Parallel Sessions/Contributed Papers

SESSION 6: DIVERSITY ISSUES IN ENGINEERING EDUCATION II

Chair: L. Simon, New Jersey Institute of Technology
Room 240

2:15 p.m. *Introductory Remarks*

2:20 p.m. Paper 6 – a:
EOP@NJIT: Diversity Personified. L.T. Howell. New Jersey Institute of Technology.

2:40 p.m. Paper 6 – b:
The Role of Cultural Diversity in Enhancing Engineering Education. M.G. Prasad. Stevens Institute of Technology.

3:00 p.m. Paper 6 – c:
Challenges in Teaching a Digital Signal Processing Course to International Graduate Students. K. Mondal. Fairleigh Dickinson University.

3:20 p.m. *Break*

3:30 p.m. Paper 6 – d:
Tech X Ploration: A Summer Institute for High School Girls or What We Did on our Summer Vacation. J. Lamela and J. Finne, Middlesex County College, NJ; K. Ford, New Jersey Center for Advanced Technological Education; and D. Iacolino, Perth Amboy Public School System.

3:50 p.m. Paper 6 – e:
New Jersey Institute of Technology’s K–16 Programs to Enhance Diversity in the Technical Work Force. D. Hanesian and A.J. Perna. New Jersey Institute of Technology.

4:10 p.m. *Concluding Remarks*

**SESSION 7: INNOVATIVE APPROACHES TO ENGINEERING EDUCATION
AND ASSESSMENT II**

**Chair: W.E. Kelly, The Catholic University of America
Room 225**

2:40 p.m. *Introductory Remarks*

2:40 p.m. Paper 7 – a:
Using Working Model Simulations in a First Statics Course. S.J. Klotzkin,
Cincinnati, OH; and H.S. Kimmel, New Jersey Institute of Technology.

3:00 p.m. Paper 7 – b:
Teaching Engineering Students Energy Conservation. H.A. Kalhor and M.R.
Zunoubi. State University of New York, New Paltz.

3:20 p.m. *Break*

3:30 p.m. Paper 7 – c:
*The Design of a Robust Tool for the Measurement of Understanding the Impact
of Engineering Solutions.* M. Albanese and R.J. Puerzer. Hofstra University.

3:50 p.m. Paper 7 – d:
Intelligent Design and Engineering Design Education. S. Keilson. Loyola
College.

4:10 p.m. *Concluding Remarks*

SESSION 8: EARLY ENGINEERING COURSES

**Chair: J. Carpinelli, New Jersey Institute of Technology
Room 235**

2:15 p.m. *Introductory Remarks*

2:20 p.m. Paper 8 – a:
*Using Primitive Engineering as a Tool for Introducing Engineering Design
Concepts for K–12 Outreach: Experiences with Trebuchets and Waterwheels.* A.
Ortega and S. Rodriguez. Villanova University.

2:40 p.m. Paper 8 – b:
The Transition from the 8085 to the “Modern World. J.S. Finne, Middlesex
County College; J. Carpinelli and W. Barnes, New Jersey Institute of Technology.

3:00 p.m. Paper 8 – c:
Diversity in Uniform: An Approach to Teaching Introductory Information Technology. J.C. Giordano and J.S. Ransbottom. United States Military Academy.

3:20 p.m. *Break*

3:30 p.m. Paper 8 – d:
Closed Book vs. Open Book Tests and Examinations in Statics. A. Kuzmar. Penn State University, Fayette.

3:50 p.m. Paper 8 – e:
Diversity of Engineering and Technical Education. Urban Speed Limits: An Illustrative Example. P.L. Brach, A. Zeytinci, and P. Polouse. University of the District of Columbia.

4:10 p.m. *Concluding Remarks*

SESSION 9: STUDENT – ORIENTED PROJECTS

**Chair: G. Milano, New Jersey Institute of Technology
Room 220**

2:40 p.m. *Introductory Remarks*

2:40 p.m. Paper 9 – a:
Diversity in the Development of Computing Projects. F. Zlatarova. Elizabethtown College, PA.

3:00 p.m. Paper 9 – b:
A Better Way to Illustrate Atmospheric Dispersion in the Classroom. P. Dacunto and M. Hendricks. United States Military Academy.

3:20 p.m. *Break*

3:30 p.m. Paper 9 – c:
2007 DARPA Urban Challenge – Highland Racing. E. Hou, T.N. Chang, A. Dhawan, J. Ji, E. Luxford, D. Rodriguez, W. Stoddart, and S. Siddiqui. New Jersey Institute of Technology.

3:50 p.m. Paper 9 – d:
An Integrated Approach to Creating Student–Awareness, Pedagogy and Efficient Management of Multi–Cultural Teams in Engineering Projects. A. Bhate, M.G. Prasad, and L. McCusker. Stevens Institute of Technology.

4:10 p.m. *Concluding Remarks*

SESSION 10: TOOLS FOR ENGINEERING EDUCATION

Chair: H. Li, New York City College of Technology of CUNY

Room 215

2:15 p.m. *Introductory Remarks*

2:20 p.m. Paper 10 – a:
Solving Problems in Packed Absorption Using Mathcad®. E.N. Bart and J. Kisutcza. New Jersey Institute of Technology.

2:40 p.m. Paper 10 – b:
A Software for the Shear Design of Rectangular Reinforced Concrete Beams. A. Pieris. Raritan Valley Community College, NJ.

3:00 p.m. Paper 10 – c:
Some Tested Methods and Tools for Real-life Exposure in an Academic Setting for Millennial Generation Engineering Students. P.G. Ranky. New Jersey Institute of Technology.

3:20 p.m. *Break*

3:30 p.m. Paper 10 – d:
Tracing the Execution of Computer Programs – Report on a Classroom Method. T.M. Warms and R. Drobish. Penn State University, Abington College.

3:50 p.m. Paper 10 – e:
Distance Learning with Limited Bandwidth. H. Chaya. Manhattan College.

4:10 p.m. *Concluding Remarks*

4:15 – 4:45 p.m. Ballroom B
Closing Comments & Ice Cream Social