

**THE “5XME” WORKSHOP:  
TRANSFORMING MECHANICAL ENGINEERING EDUCATION AND RESEARCH IN  
THE USA**

**May 10-11, 2007  
National Science Foundation, 4201 Wilson Blvd, Arlington, VA  
Stafford-II, Room 555 (and Rooms 525, 595)**

**AGENDA**

**Thursday May 10**

- 8:00 *Registration and continental breakfast*
- 8:15 Welcome and self-introductions
- 8:30 Opening Remarks
- Arden L. Bement , Director, National Science Foundation
  - Richard O. Buckius , Assistant Director, Engineering Directorate, NSF
- 9:00 Plenary session I
- *Summary of 5XME workshop white paper*, A. Galip Ulsoy, W.C. Ford Professor of Manufacturing, University of Michigan
  - *Reinventing ME workshop and renaissance engineer*, Adnan Akay, Director, Division of Civil, Mechanical and Manufacturing Innovation, NSF
  - *Summary of NRC report on benchmarking US research competitiveness in mechanical engineering*, Ward O. Winer, E.C. Gwaltney, Jr. Chair of the Woodruff School of Mechanical Engineering and Regent's Professor, Georgia Institute of Technology
- 10:15 *Coffee Break*
- 10:30 Plenary session II
- *Globalization and Engineering Education*, Nariman Farvardin, Dean and Professor of Electrical and Computer Engineering, University of Maryland.
  - *Reinventing Engineering for the 21<sup>st</sup> Century*, James J. Duderstadt, President Emeritus and University Professor of Science and Engineering, University of Michigan
- 12:30 *Lunch Break – on your own.*
- 2:00 3-Breakout sessions Groups A1, A2, A3
- 3:00 Report back
- 3:15 *Coffee Break*
- 3:45 3 Breakout sessions Groups B1, B2, B3
- 4:45 Report back
- 5:00 Adjourn
- 6:30 *Reception and Dinner (DaVinci Suite, Arlington Hilton)*

## **Friday May 11**

- 8:00 *Continental breakfast*
- 8:30 3 Breakout sessions Groups C1, C2, C3
- 10:00 Report back
- 10:30 *Coffee Break*
- 11:00 Discussion of recommendations
- 12:00 *Lunch Break – on your own.*
- 1:30 Outline of report, next steps, and assignment of tasks
- 3:00 Adjourn

### **Proposed Breakout Groups<sup>1</sup>:**

1. Earl Dowell (moderator), Richard Taber (recorder), Al Pisano, Mario Rotea, Sheri Sheppard, Pat Moran, Nariman Farvardin, Eduardo Misawa, Allan Soyster, Richard Buckius.
2. Bill Wepfer (moderator), Gretar Tryggvasson (recorder), Bill Miller, Fritz Prinz, Marshall Jones, Robert Clark, Galip Ulsoy, Jim Duderstadt, , Judy Vance.
3. Pam Eibeck (moderator), Deba Dutta (recorder), Andrew Alleyne, Bob Warrington, Norm Fortenberry, Rohan Abeyaratne, Ward Winer, Tom Perry, Adnan Akay, Arden Bement.

### **Possible Breakout Topics, e.g.,**

#### **Group A – focused on needs/opportunities, e.g.**

- Necessary attributes of the 5XME (e.g., fundamentals, agility, innovation, global focus, leadership, communication)?
- Emerging areas (bio, nano/micro, cogno, macro, eco/energy, ..)?
- Attracting students to engineering from all societal groups?

#### **Group B – focused on possible initiatives, e.g.**

- Teaching procedural knowledge (e.g., engineering problem-solving, design, research, innovation)?
- Project/research based UG education (e.g., Boyer commission report)?
- Concurrent discovery and innovation in graduate education?

#### **Group C – focused on recommendations, e.g.**

- Engineering clinics, discovery/innovation institutes?
- Renaissance engineers: developing the individual?
- Engineering liberal arts bachelors, professional masters?

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<sup>1</sup> I have taken the liberty to assign people to breakout groups, and to assign a moderator and recorder for each group. Please let me know if you would like to change these by contacting [ulsoy@umich.edu](mailto:ulsoy@umich.edu).