

**IEEE CSS Technical Committee on Control Education Meeting Minutes
CDC 2003, Hyatt Regency Maui Resort,
Maui, Hawaii, 11 December 2003**

Attending: Bozenna Pasik-Duncan (Chair, <bozenna@math.ukans.edu>), Floyd Hanson (Secretary, <hanson@uic.edu>), Jing Sun <jingsun@engin.umich.edu>, Krzysztof (Chris) Kozlowski <kk@ar-kari.put.poznan.pl>, Kent Lundberg <klund@MIT.EDU>, Dennis Bernstein (CSM EIC, <dsbaero@umich.edu>)

1. Articles on Education for Control Systems Magazine (CSM): Dennis Bernstein asked for articles on the two workshops,
 - 1) NSF Workshop for Middle and High School Teachers and Students: Ideas and Technology of Control Systems.
 - 2) First NSF Workshop for Women in Control.
 - Need good, interesting, ready-to-go articles, by 26 December, for the April 2004 issue of 2004 of CSM.
 - High School Workshop Article assigned to Molly Shor and Floyd Hanson.
 - Women and Control Workshop article assigned to Bozenna Pasik-Duncan and Molly Shor.
 - Include interesting student questions, such as that asked of Richard Murray: "If an (autonomous) truck kills someone, are you liable for murder?"
 - 3) Other articles of interest for CSM:
 - On K-12
 - Control Textbook Reviews, books you like to teach from.
 - Bonnie Heck's: Lego Models/Lego Mindstorms, with codes.
 - Timely report of events.
 - Technology transfer, Interdisciplinary or Cross-Boundary research (e.g., Jing Sun's adaptive control teaching)
2. No ACC 2004 Workshop in Boston.
3. Next Workshop CDC 2006 San Diego.
 - Develop materials for high school teachers, independent study and lesson plans.

4. Book on the TCCE Workshop experiences being prepared by one a consistent workshop teacher attendee, Lynette Forinety <forinety@ocps.net>. Bernstein suggested asking her to write an article on it for CSM.
5. Course Material Development (primarily Bernstein suggestions):
 - Write a proposal to CSS for support writing control class materials. Bernstein suggested taking the global view, percolating from the top with classroom materials, whereas the workshops or the NSF Research Experience for Teachers (RET) is the local model, percolating from the bottom.
 - Need to pay graduate students to work on classroom materials, instead of working on outside jobs.
 - Classroom Material Examples: i) What is Control?, ii) History of Control, iii) Some of the Math used in Control. See new book,
 - "Inventing America", viewed through technology developments.
 - Develop 1 or 2 Posters: i) Systems and Signals, based on Bernstein's short article, or Systems, Signals and Control, 2) Consumer Appliances: How, What, and Where Control Works in Appliance X, e.g., computer hard drives and VCRs.
 - Add Control Education site on CSM webpage.
 - Kent Lundberg is making low cost lab kits at about \$20 each, e.g. Magnetic Lifts.
 - Develop ideas for Science Fair Projects for Grade X, where X = 2, 3, 4, 5, 6, ... Bozenna suggested Signals in the Brain and relation to Epilepsy. Bernstein, in particular, suggested the Balancing of a Slide with a Moveable Pivot or Why a Tight Rope Walker need a Bar for Balance.
 - Bozenna suggested filtering the projects or materials through TCCE Workshop teacher veterans.
 - Check existing books on Science Projects for reference and ideas.
6. Put Workshop video links on the web.