Environmental Control Technology Industry Education Initiative

A collaborative between Peralta Community College District & LBNL: Peter Crabtree, Joe Derringer, Rick Diamond, Chuck Frost, Phil Haves, Katie Koelle, Nick Kyriakopedi, Evan Mills, Mary Ann Piette
Context

- Peralta-LBNL Partnership
  - Peralta: existing program
  - LBNL: energy folks and CSEE
- NSF Proposal ($1M over 3 years) Under NSF’s $40M Advanced Technology Education area
Focus Group Meeting

- Sept 5, 2003
- 41 participants (7 from CCC, see matrix)

Focus Group Participants (N=41)

- Energy Management
- Education
- Utilities; Government; Research (Energy Issues)
- Facility Operations

Trades Represented
- Refrigeration Equipment & Service
- Residential Design & Service
- Equipment Manufacturer
- Mechanical Contractor
- Controls Sales & Service
- Commissioning
- Energy Management
- Building Owner; Facilities Management
- Engineering and Specifying
- Educators
Goals

- Advance understanding of industry needs
- Obtain an informed critique of our initial curriculum plan
- 27 commitments
Agenda

The meeting was divided into three periods:

- Industry Needs, Opportunities, and Skills Required
- Curriculum Analysis and Development
- Learning Methods
Overarching Need

- The fundamental critical change required was described as a shift from the traditional “component-level” focus on buildings to a more integrated “systems” perspective, coupled with better bridging of theory and practice and understanding the underlying concepts and logic. The increasing role and sophistication of controls technologies are both a source of the need and a fundamental enabling element of this transition.
Technical Skills

- Basic building science: physics and math and theory of how buildings work
- Diagnosing and trouble-shooting problems
- Equipment programming (e.g. controls sequences of operations)
- Sustainable design; green buildings
- Performance measurement and data analysis (e.g. collection and assessment energy trend data)
- Information technology and networking
- Safety and risk management
Business Skills

- Computer literacy
- Working with people, reporting, etc.
- Economic and financial analysis (including assessment of non-economic benefits)
- Communicating value to decision makers
- Critical thinking; problem solving
Curriculum

- Strawman curriculum
- 13 new courses
- Columns are strands/certifications
- Very strong hands-on component (real buildings and simulation)
- Should serve new trainees as well as continuing education
- Include Cx in Core
Articulation

- High School Curriculum: need for increased skills & appeal of the trade
- 4-year schools
- Continuing education
Learning Experiences

- Strong hands-on component
- Laboratory
- Field experience
- “Flight Simulator”
Questions for CCC

- 4-year schools
- Content & “skill goals” of Cx courses
- Opportunities to work together
  - Letter of commitment