

UC Berkeley Extension Service

HVAC Control and Energy Management Systems Offered Spring 2009

HVAC Control and Energy Management Systems, a core course for the UC Berkeley Extension/Golden Gate Chapter co-sponsored [HVAC/R certificate program](#) will be offered this spring. This is a practical course that covers the design of control systems soup to nuts including topics on pneumatic, electric and DDC controls; sensors and control devices; development of point lists; energy efficient control sequences; open control protocols; issues for control retrofits; control system performance verification; and other topics. Several classes will be done in a workshop format. The course manual will include parts of the ASHRAE Self-Directed Learning Course on HVAC Controls with supplemental notes by the instructors Steve Taylor and Mark Hydeman. **This course is only offered once a year.**

Details:

- 10 evenings
- March 19th to May 28th Wed., 6:30-9:30 pm
- San Francisco: Room 800, UC Berkeley Extension Downtown Center, 425 Market St., 8th Floor (Between the Embarcadero and Montgomery Street BART/MUNI Stations)
- \$675 (EDP 326264)

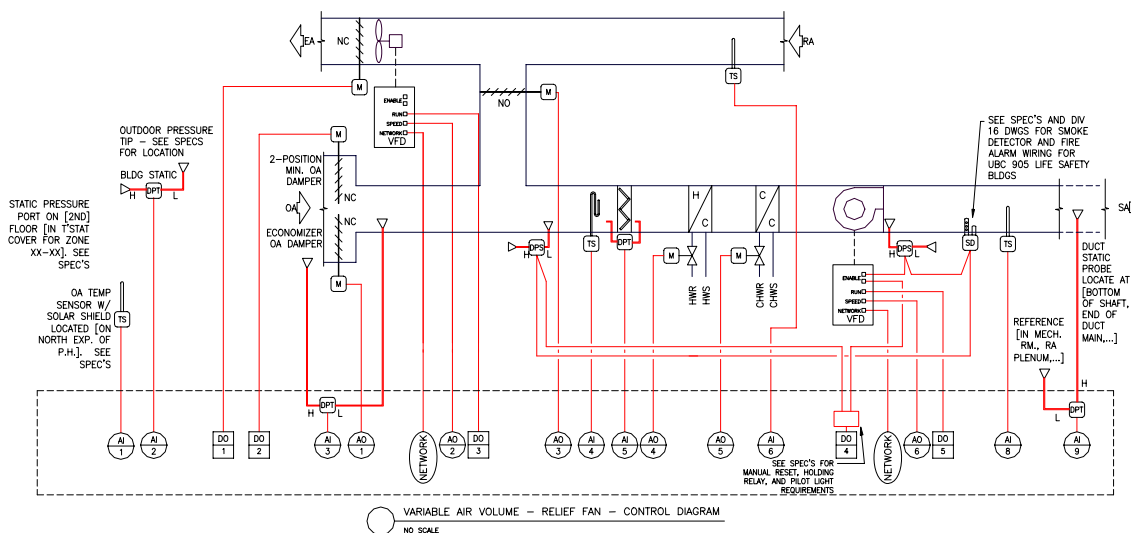
You can register on-line at <http://www.unex.berkeley.edu/cat/course159.html>.

About the instructors:

Steve Taylor, PE and Mark Hydeman, PE are Principals at Taylor Engineering. Steve and Mark have extensive practical experience in the design and commissioning of control systems. Together they have designed and commissioned over 40 projects representing nearly 20 distinct product lines. Their customers include Oracle Corporation, Symantec Corporation, UC Merced, Stanford University, Pacific Gas and Electric Company, and the State of California. This is their 6th year offering this highly popular course.

For information contact:

- Steve Taylor (staylor@taylor-engineering.com, 510-263-1540)
- Mark Hydeman (mhydeman@taylor-engineering.com, 510-263-1543)



Topics Include:

- Basics of electricity
- Motors, drives and starters
- Brief overview of pneumatic controls
- Control valves and dampers
- Sensors and auxiliary control devices
- Introduction to DDC controls
- DDC protocols and gateways
- How to specify DDC controls for top performance with details on:
 - Quality of sensors
 - Points lists
 - Sequences of operation
 - Submittals
 - Roles and responsibilities
 - Trending
 - Alarming
 - Control interface
- Steps for performance verification of DDC systems
 - Submittal review
 - Prefunctional tests
 - Functional tests
 - EMCS trend reviews