

**ARCE 760 -- AUTOMATIC CONTROLS FOR  
BUILDING MECHANICAL SYSTEMS**  
Fall Semester 2003

*Course Meets:* TR 1:00 to 2:20 p.m. in 136 Broadcasting Hall

*Instructor:* Brian A. Rock, Ph.D., P.E.

*Office Hours:* TR 8:30 a.m. to 9:50 a.m., 135 Broadcasting Hall

*Catalog Description:*

An introduction to controls for building mechanical systems. Discussions of the theory, design, and equipment used for control systems. The benefits of pneumatic, electrical, and electronic (DDC) controls will be examined.

*Prerequisites:* ARCE 660 or consent of instructor.

*References:* Handouts (Required CEAE copy fee --> Georgia, 2134 Learned).  
Fundamentals volume of the ASHRAE Handbook, I-P ed., 2001.  
Control Systems for Heating, Ventilating and Air Conditioning, 5th ed., Haines and Hittle, 1993+.

<i>Grading:</i>	Homework	70%	Final Grades:		
	First quiz	10%	90% to 100%	=	"A"
	Second quiz	15%	80% to 89.9%	=	"B"
	Lab participation	<u>5%</u>	70% to 79.9%	=	"C"
	Total =	100%	60% to 69.9%	=	"D"
			Less than 60%	=	"F"

Homework assignments and quizzes will each be graded on a 0 to 10 point scale. The final scores may be curved up. Each homework solution is due one week after assignment unless otherwise stated. Late work not accepted for credit. Advance written notice, acceptable physical proof and reason, and verification are required for a class obligation to be rescheduled. Voluntary events are not acceptable. Some computer programming (in Basic or Fortran?) and laboratory work are required. Students assume the liability for personal injury during lab work; do not perform any tasks without proper training, safety precautions, and/or supervision.

*Final Exam:* None.

*Other:* Students are referred to and expected to abide by the academic misconduct policies that are located in the Timetable of Classes. Penalties for academic misconduct range from receiving a zero on a particular assignment or exam to course failure and removal.

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**COURSE OBJECTIVES**

- ☞ To begin to learn the terminology, "language", and analysis methods of controls engineering
- ☞ To gain an appreciation of control equipment and systems
- ☞ To examine some basic characteristics of electronic data acquisition and control through lab demonstrations, etc.

**HOMEWORK**

- √ Be neat. Rewrite if needed.
- √ Use engineering paper (front side only) for calculations, graph or computer paper for graphs
- √ Show all calculations, units, conversions, and references. Show a sample calculation for repetitive calculations.
- √ Box only the *final* answer for each problem
- √ For assignments that include computer programming, be sure to turn in a printout ("hard-copy") of your source code. Do not turn in a disk unless requested.
- √ Staple pages together in the upper left-hand corner
- √ If less than about 12 pages, fold lengthwise and write your name on the outside. Otherwise, keep flat.