**Experimental Stress Analysis**
**Fall, 1998**
**CGN 6933**

**Course Description:** CES 4605, Experimental Stress Analysis. The objective of the course is to provide the *tools of research* necessary to design equipment and/or instrumentation schemes for directed studies. It is intended for structural and geotechnical graduates conducting research toward the completion of a master's thesis or doctoral dissertation.

**Course Materials:** Experimental Stress Analysis, Dally, J.W. and Riley, W.F. 2nd or 3rd ed. McGraw Hill

(handouts)

**Instructor**: A. Gray Mullins, Ph.D., P.E., ENG 044, 974-5845

**Class Schedule**: Section 003 R 6:00 pm- 8:50 pm

**Office Hours**: MW 11:00 - 12:00, or by appointment

**Topics:**
Introduction to strain measurements and related instrumentation
Strain-gage based transducers
Electro-magnetic / electro-static noise control
Optimizing strain gage excitation levels
Residual stress measurements
Effects of thermal strain and temperature compensation
Installation of strain gages / soldering techniques
Criteria and recommendations for strain gage selections
Linearity / nonlinearity of Wheatstone bridge applications
Transverse sensitivity
Errors due to gage misalignment
Measurement of thermal expansion
Dynamic measurements and data filtering
Data acquisition with analog to digital convertors

**Lecture:** CUT 202

**Laboratory:** ENG 206

**Grading:**
1 Mid-term (50%)
1 Instrumentation Project (50%)