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%)