

## Graduate Course Offering for Spring 2002

**Dr. M. E. Barkey**  
**Aerospace Engineering and Mechanics Department**

### •AEM 637 Theory of Elasticity

#### **General Information:**

Elasticity is a foundation course in solid mechanics from which studies in fracture and inelastic behavior of materials, finite element analysis, and advanced structural behavior naturally follow. Elastic material behavior is discussed in the framework of applied mathematics and solutions to problems of engineering relevance are presented.

The course will consist of three 50-minute lectures per week. The course is required of all MS and PhD students enrolled in the Engineering Science and Mechanics degree program.

#### **Prerequisites:**

Knowledge of Mechanics of Materials, and an undergraduate engineering or mathematics degree.

#### **Catalog Description: (3) Three hours.**

Equations of linear elasticity, principal stresses and strains, stress and displacement potentials, energy principles, and numerical methods.

#### **Textbook:**

Elasticity in Engineering Mechanics by Boresi and Chong, second edition. ISBN No. 0-471-31614-8.

#### **Preliminary List of Topics:**

- Elements of Vector and Tensor Calculus
- Theory of Deformation and Strain-Displacement Relations
- Theory of Stress
- Elastic Constitutive Relations
- Boundary Value Problems of Elasticity including  
Torsion of non-circular bars, bending of beams, stress concentrations

#### **Meeting Time:**

Tentatively scheduled for M1 Hardaway Hall 8:00-8:50am M, W, F.

**For more information...**contact Dr. Barkey at 348-1621/mbarkey@coe.eng.ua.edu or contact Ms. Baker at 348-7300 for catalog number and enrollment information.