## **CIVL 462L: Geotechnical Engineering Laboratory (1 Credit)**

A vector treatment of the concepts and characteristics of forces and couples. Distributed forces. Center of mass; centroid of area. Equilibrium of particles and rigid bodies. Trusses and frames. Internal forces. Shear and moment distribution in beams. Area moment of inertia. The main purpose of this course is to develop the engineering student’s ability to analyze static equilibrium problems in a logical manner. Emphasis is placed on an understanding of principles employed in the solution of problems rather than reliance on a rote process of substitution in numerous formulas. *(Co-requisite: CIVL 462)*

**Course Learning Outcomes:**

By the end of the course, students will be able to:

A1.  Apply various concepts of soil mechanics to determine soil properties through laboratory testing.

B1. Analyze the data and results of soil testing for geotechnical and environmental experiments.

B2. Communicate effectively by writing reports and presenting data acquired from the soil and geotechnical experiments.

**Course Learning Materials:**

* Lab Manual
* Lambe T., Soil Testing in Engineering, Wiley & Sons.
* Mandal J.N., Divshikar, D.G., Soil Testing in Civil Engineering, Oxford & IBH Publishing Company Pvt. Ltd.

**Course Content:**

1. Laboratory Instruments Overview
2. Testing of statements made and conclusions derived in CIVL 462
3. Soil Processing and Moisture Content Test
4. Specific Gravity Test
5. Field Density Test
6. Grain Size Analysis
7. Consistency limits