

## **CE 4105: Foundation Design**

### **3 Credit Hours**

*Prerequisite: CE 3701, CE 3708, and Engineering Standing*

This course deals with design of foundations for buildings and other structures and also for such non-foundation problems as designs of retaining walls, bulkheads, and earth dams; as well as the design of natural slopes and stabilization of soils mechanically and chemically. This course is designed to provide students in civil engineering with methods of analysis and design for various geotechnical systems. Topics to be covered include: subsurface investigations; excavations; shallow foundation; deep foundation; design of sheeting and bracing systems; lateral earth pressures and earth retaining structures, slope stability.

## **CE 4177: Transportation Engineering**

### **3 Credit Hours**

*Prerequisite: ENGR 3305 and Engineering Standing*

This course provides an introduction to the highway engineering and traffic analysis. Principle topics covered in this course include: introduction to the significance of highway transportation to the social and economic underpinnings of society, road vehicle performance, geometric design of highways, pavement design, traffic flow and queuing theory, highway capacity and level of service analysis, traffic control and analysis at signalized intersections.

## **CE 4178: Highway Design and Construction**

### **3 Credit Hours**

*Prerequisite: CE 4177*

This course addresses many challenges facing engineers when designing and constructing highways. Areas of study include the design of horizontal and vertical alignments, roadside features, parking facilities, intersection design elements, traffic control devices, traffic signal operations and vehicle detection design, and the socioeconomic impacts of the roadway design.

## **CE 4179: Transportation Engineering Lab**

### **1 Credit Hours**

*Concurrent: CE 4177*

This laboratory exposes students to a variety of traffic studies commonly conducted in the field, including spot speed study, turning movement counts, vehicle delay study, parking study, saturation flow rate study, queue length study, headway study, traffic compliance study, and verification of Poisson distribution. In addition to the field studies, the students will learn how to conduct traffic analysis and simulation using traffic analysis software (HCS+ and Synchro/SimTraffic).