

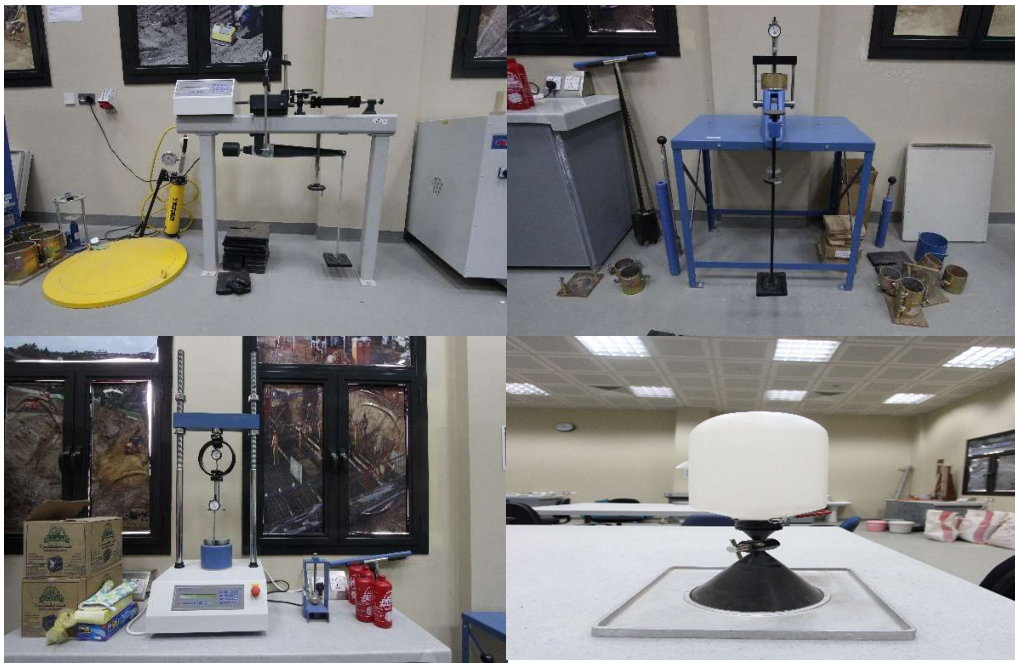
The department of civil engineering Laboratories

The laboratories in use by the CE Department are housed in buildings 11 and 12 on the UT main campus. Each lab is used to serve the experimental component in one or more courses. A short description of these laboratories and equipment in each laboratory, courses served by each lab equipment are provided in detail in the next sections. The laboratories have adequate equipment for carrying out experimental work for courses, senior design projects and research. The laboratories are well maintained and regularly upgraded. The laboratories used by the CE program adequately support the curriculum delivery These laboratories include:

- A. Soil Mechanics and Foundations Laboratory.
- B. Materials Engineering Laboratory.
- C. Highways Engineering Laboratory.
- D. Surveying Laboratory.
- E. Hydraulics and Fluid Mechanics Laboratory.
- F. Computer Laboratory

A. Soil Mechanics and Foundations Laboratory

Located in room 1-11-0-4, the lab actively contributes to the experimental activities in the CE Department. Its enables faculty and students are to perform a wide variety of different test in geotechnical engineering and foundations. It serves educational purposes at different levels to students at the undergraduate level. Some of major equipment are shown in Fig.7.1. This Soil mechanics and Foundation laboratory covers the experimental work associated with the CE 331, CE 432 and Senior Design Project (SDP).



B. Materials Engineering Laboratory

The laboratory is located in room 1-11-0-3. This Laboratory is equipped with machines and apparatus for training the students in the field of concrete manufacturing. The construction material lab enables the students and Faculty to perform tests on the materials of reinforced concrete and on samples of concrete such as consistency and strength of cement paste, particle size distribution and abrasion of aggregate, consistency and workability of fresh concrete and compressive strength of hardened concrete. It provides educational facilities at different levels to students. The construction material laboratory covers the experimental work associated with CE 323, SDP courses.



C. Highways Engineering Laboratory

Highways engineering Laboratory is located in room 1-11-09. This Laboratory has advanced equipment for training the students in the field of rigid and flexible asphalt manufacturing. Students and faculties can apply tests in the highway lab on the materials of asphalt, aggregate, soil on samples of different asphalt layers such as bearing ability of base, subbase and subgrade, consistency of bituminous samples, characteristics asphalt binders such as ductility, and softening point and design asphalt mixtures using Marshall Method. It provides educational facilities at different levels to undergraduate students. The Highway Engineering laboratory covers the experimental work associated with CE 442, and SDP courses



D. Surveying Laboratory

The laboratory occupies rooms 1-11-0-11 and 1-11-0-12. This laboratory has different instruments and apparatus for training the students in the field of surveying. The survey lab supports the students and Faculty to determine the dimensions, levels and angles in the site. The survey lab enables the students to measure the topography of the sites, which helps calculate the quantities of cut and fill under any civil engineering structures. The survey laboratory learns the students to make different measurement in the field to draw maps for a site with different scales. It provides educational facilities at different levels to undergraduate students. The Survey Engineering laboratory covers the experimental work associated with CE 311, CE 412, SDP courses.



E. Hydraulics and Fluid Mechanics Laboratory

The Hydraulics and Fluid Mechanics laboratory provides a “hands on” environment that is crucial for developing students understanding of theoretical concepts. The laboratory contains equipment for the measurement of various fluid properties and flow characteristics. Facilities are available for investigating the fundamentals of characteristics of pipe and open channel flows. The lab is equipped with test instruments to aid students to demonstrate the Bernoulli’s equation, Buoyancy law and Pascal’s law. The students in the lab are able to demonstrate the flow over notches and weirs. The Fluid Mechanics and Hydraulic laboratory covers the experimental work associated with CE 371, CE 472.



F. Computer Laboratory

The students of the CE department have access to a computer lab. The systems are supplied with all necessary software for the students to carry out their tasks as: MS-Office (complete), AUTOCAD and other software. Total Number of PCs is 30 with total capacity of the laboratory maximum of 30 students. It is used for teaching different courses like Engineering Drawing, CAD, Numerical methods, etc.

