

FACILITIES

The Department of Civil Engineering has 10 laboratories to serve the needs of the students.

Hydraulics Laboratory

Head of Laboratory : Dr. Badronnisa Yusuf
Assistant Engineer : Mr. Nik Muhamad Faiz Nik Yahaya

This laboratory is to support teaching and learning of courses on Fluid Mechanics and Hydraulics. It is equipped with adequate facilities for execution of experiments on fluid mechanics and open channel flow. Major equipment available are hydraulics bench with its accessories, pipe network apparatus, rainfall-runoff apparatus and open channel flume. The experiments performed using apparatus mounted on the hydraulic bench includes force of water jet on plate, flow through orifice and sharp crested weir, dead weight pressure gauge calibrator, Bernoulli's theorem, Pelton wheel and centrifugal pump. Experiments on head loss in a pipe system are performed using the pipe network apparatus. Flow measurements through a broad-crested weir and demonstration of hydraulic jumps are conducted in the teaching flume. In addition, the laboratory is also furnished with equipment for open-ended experiments and research work such as a 20-meter long and 1.5-meter wide wave flume, 12-meter long and 0.3-meter wide open channel flume, 3D velocity meter, current meter and multi parameter measurement probe.

Structure Laboratory

Head of Laboratory : Dr. Nabilah Abu Bakar
Assistant Engineer : Mr. Mohammad Haffis Hamid

This laboratory serves the courses in Structural Analysis and final year project. The lightweight laboratory comprises of equipment for lightweight structure model experiments on basic structural theory. The main structural laboratory is mainly for experimental work related to structural test of reinforced concrete beams, columns, slabs and walls and steel frames. The experimental works are part of final year project in structural engineering sub discipline. These apparatus are sufficient for the teaching and learning of undergraduate students.

Geological Engineering Laboratory

Head of Laboratory : Dr. Zainuddin Md. Yusoff
Assistant Engineer : Mr. Suhkeri Hadafi Abu Bakar

This laboratory serves the course of ECV3311: Engineering Geology Laboratory. The laboratory contains rock and mineral samples for students to understand the basic properties of rocks and minerals, apart from providing a space for the students to carry out activities in understanding and interpreting geological maps. The laboratory also contains basic equipment such portable shear box, point load testing equipment and slake durability test equipment for the students to do basic strength tests on samples that they took from their fieldwork which are normally conducted at the end of week 6 of 7.

Geomechanics laboratory

Head of Laboratory : Dr. Zainuddin Md. Yusoff
Assistant Engineer : Mr. Mohd Razali Abd Rahman

Geomechanics Laboratory (formerly known as Soil Mechanics Laboratory) serves the courses related to Geotechnical Engineering such as ECV 3302 Soil Mechanics I, ECV 3303 Soil Mechanics II and ECV 3304 Foundation Engineering. The laboratory classes form part of ECV 3303 Soil Mechanics II course. The laboratory classes comprise of soil classification tests, compaction and California Bearing Ratio (CBR) test, permeability test, consolidation test and shear strengths test. The students are expected to produce reports (to an acceptable standard) for every tests conducted. These tests are considered as an aid for the students to appreciate and understand the behaviour of soils. Advanced testing and research equipment such as triaxial, Rowe's consolidation and Geotextile filtration equipment are also available.

Construction Materials Laboratory

Head of Laboratory : Dr. Noor Azline Mohd Nasir
Assistant Engineer : Mr. Mohd Fairus Ismail

This laboratory caters for ECV 3112 (Civil Engineering Materials) and final year project ECV 4999. The tests cover in this subject are material, fresh and hardened concrete properties. For the material properties testing, the tests involve are on cement, aggregate, steel and masonry. The apparatus for mentioned tests are vicat and calorimetry apparatus, sieve shaker and compression machine.

For fresh concrete properties, the tests including slump and compacting factor tests. The apparatus available for these tests are slump and compacting apparatus. These tests are to analyse the wetness and workability of the fresh concrete.

On the hardened concrete properties, the tests cover are mechanical and permeation properties. The related equipment for the testing are available in the laboratory such as compression machine (compression, tensile and flexural tests), initial surface absorption (ISAT) and water penetration apparatus (for permeation properties).

Other tests cover is on non-destructive tests (NDT) for hardened concrete and the related apparatus are ultra pulse velocity and rebound hammer apparatus. These tests are to expose the student on hand on activities related to civil engineering nature on material point of view.

Geomatics Laboratory

Head of Laboratory : Assoc. Prof. Dr. Helmi Zulhaidi Mohd Shafri
Assistant Engineer : Mr. Wan Zakaria Wan Yusoff

This laboratory serves the courses of ECV 3501 Geomatics Engineering, ECV 3105 Geomatics and Geology Camp and ECV 4501 Geoinformation. The laboratory contains equipment for carrying out experiments and field works on land surveying techniques such as leveling using automatic levels, distance and angle measurements using theodolites and total station, setting-out, earthwork, route surveying and others. More advanced equipment such as Global Positioning System (GPS) receivers are also available for more advanced experiments that will suit undergraduate students doing their final year project and also postgraduate students.

Civil Engineering Design Laboratory

Head of Laboratory : Dr. Nabilah Abu Bakar
Assistant Engineer : Mr. Wan Zakaria Wan Yusoff

This laboratory gives support to the course of ECV 3903 Civil Engineering Design Project. The laboratory provides facilities for students to learn and practice working in team. Several information technology (IT) facilities are provided such as desktop computer installed with various civil engineering design software. Hardware such as A0-plotter and scanner are in place. Ample space for meeting, discussion and presentation are also provided for students to nurture their skill in managing project and enhance their leadership skill and teamwork.

Public Health Laboratory

Head of Laboratory : Dr. Syazwani Idrus
Assistant Engineer : Mr. Mohamad Norhisham Mohamad Razi

This laboratory serves the course of ECV 3405 Water and Wastewater Engineering. The Public Health Laboratory is mainly used to carry out experiments concerning testing of water and wastewater such as chemical coagulation, pH, acidity, alkalinity, total solids, turbidity, colour, chemical oxygen demand (COD), biochemical oxygen demand (BOD), dissolved oxygen (DO), microbiological tests, total Phosphorous, Ammonia-Nitrogen, and total hardness. All the required chemicals, glassware, ovens, refrigerators, autoclave, air compressor, centrifuge, flask shaker, incubator, blender, analytical balances, overhead stirrer, microscope, pumps, Zeta meter, pH meter, dissolved oxygen (DO) meter, chemical oxygen demand (COD), spectrophotometer and jar test are also available to conduct the experiments. Equipment for advanced treatment of wastewater/leachate are also available which includes anaerobic digester and aged refused column which is useful for undergraduate students doing their final year project and also postgraduate students. The available laboratory facilities are sufficient for the teaching and learning of undergraduate students and postgraduate students.

Traffic Laboratory

Head of Laboratory : Assoc. Prof. Dr. Hussain Hamid
Assistant Engineer : Mr. Azry Tamber

This laboratory serves the course of ECV 3601 Traffic Engineering. This laboratory contains equipment for field observation, recording and data display of traffic movement (vehicles and pedestrians) both for teaching and research purposes such as video camera and video player with television sets, tele-counters and laser speed detector. These equipment are used in teaching and learning purposes as well as for data collection by undergraduate students doing their final year project and also postgraduate students doing research related to the area of Traffic and Road Safety Engineering.

Highway Laboratory

Head of Laboratory : Prof. Dr. Ratnasamy Muniandy
Assistant Engineer : Mr. Azry Tamber

This laboratory serves the course of ECV 3603 Highway Engineering II. The laboratory houses various equipment such as Material Testing Apparatus (MATTA) for the resilient modulus, fatigue and repeated axial load tests which are fundamental for the understanding of the behavior of asphalt mixtures at various levels of loading and temperatures. A complete set of aggregate test equipment are available to carry out tests on aggregates that would give an insight of aggregates and their physical properties such as impact, crushing, polished stone and abrasion values. An asphalt penetration device and a Ring and Ball apparatus along with rotational viscometer are also made available for students to run tests that would give the asphalt physical properties such as penetration, softening point and viscosity. A heavy-duty mixer is also available in the laboratory for students to carry out asphalt mix design for applications. By looking at the nature of the course and its applicability in other courses and the industry, it is found that the laboratory is considered average only compared to any international standards.