

Departmental Laboratories at a Glance

Lab I: STRUCTURAL AND ENGINEERING GEOLOGY LABORATORY

The structural and Engineering Geology Laboratory at the Department of Earth Sciences focuses on the application of structural geology to engineering practice. Its main goal is to understand earth-structure interactions and investigate how the earth and earth processes impact human-made structures and human activities. The students are trained to understand the properties of different rocks and minerals, structural data acquisition, structural mapping and cross sectional profiling. The equipments in the lab include Compressive strength Machine, Plastic Limit Device, Liquid Limit Device, Brunton Compass, GPS, Chisel and Geological Hammer, maps.

Lab II: PALEONTOLOGY LABORATORY

The paleontology lab is specifically maintained as a repository for collection and archive of various fossils of animals and plant that date back to the geological past of Earth. A good collection of fossils is used for teaching of master's students and research facilities. The lab has a good collection of various fossils. The list of fossils includes but is not limited to; Gastropods, Mollusks, Trilobites, Cephalopods, Lamellibranchiata, etc. We have a collection of fossils of plant leaves, Gondwana plant fossils like Glossopteris, Gangamopteris, Schizoneura, etc. The department is upgrading the lab each year by procuring new collection of fossils from different agencies.

Lab III: HYDROGEOLOGY/GEOCHEMISTRY LABORATORY

The hydrogeology Lab has been developed over the last 18 years and is used for the study related to the flow and transport in surface and subsurface geological medium. The lab is equipped with instruments including: wells water stil, wells distillation apparatus, digital weighing machine, water analysis kit, water level indicator, Ph and EC meters, Spectro-photometer, Flame-photometer, etc. The departmental faculty is involved in teaching and research at master's level and research of M Phil and PhD. The lab is meant for the preparation and analysis of samples for Major ion, Trace element, and samples for Isotope analysis. The faculty is involved in a variety of collaborative projects with colleagues from national and international institutions.

Lab IV: OPTICAL LABORATORY

The laboratory provides ongoing support services for teaching at master level and research facilities to MPhil/PhD scholars as well as for carrying out research work of various sponsored projects. The lab is equipped with modern models of geological microscopes and are supported by various accessories that make thin section study more accurate. The lab is equipped with latest models of microscopes like petrological microscope, Magnus binocular microscope, ore microscope, Trinocular microscope. The laboratory is designed to provide accurate mineralogical and petrographic analyses of rocks, minerals, ores and allied samples. Petrology lab is equipped with the thin section preparation machine, powdering apparatus, sample cutting and grinding machine, wells oven, wells furnace, etc.

Lab V: MACERATION/SEDIMENTOLOGY LABORATORY

This laboratory provides quality data for research projects, graduate and under-graduate students and outside clients. The laboratory performs mostly physical analysis of soils and sediments and encourages students to run their own analyses. The lab is equipped to measure grain size using sieves attached to an automatic sieve shaker. Wet grain size analysis equipments are also available in the Lab. The lab is also equipped with an oven, Pestle and Mortar both stainless steel and Agate, Centrifuge, Specific Gravity measurement tools, Hydrometer, petrological microscopes and analytical balance.

Lab VI: REMOTE SENSING AND GIS LAB

The department has a well-developed and sophisticated lab for Remote Sensing and GIS studies. The lab is supplied with a continuous power supply that enables the students and researchers to work without interruption.

The lab has modern computer systems of high capacity used for image interpretation of large satellite data.

The students and faculty are using updated versions of various software such as, ARC GIS, ERDAS, ENVI, Coral draw, etc.

Lab VII: NATIONAL ICE CORE LAB

The national ice core laboratory established at the Department Earth Sciences is first of its kind in the country to study the Himalayan cryosphere for Paleoclimate and Recent changes in the climate. The laboratory was established with the support of Department of Science and Technology (DST) under the Prime

Ministers national mission on Climate Change under the program National Mission for Sustaining the Himalayan Ecosystem (NMSHE) at a grant of Rupees 90 Million (9 Crore) under the supervision of Professor Shakil A Romshoo. The Laboratory hosts isotope analyzer, ice core drills, Total Organic carbon (TOC) analyzer and other equipments to analyze the ice cores.

Lab VIII: AIR QUALITY OBSERVATORY

The air Quality Observatory established at the Department Earth Sciences under the assistance of Ministry of Earth Sciences under the program “System of Air Quality and Weather Forecasting And Research” (SAFAR). The Lab is the only air quality observatory for monitoring air Quality particularly Particulate Matter (PM) 2.5, 2.10, CO, CO₂, CH₄, Nitrous Oxide and Ozone. The Lab is operational since 2013 under the supervision of Professor Shakil A Romshoo.