



UNIVERSITY COLLEGE OF ENGINEERING KAKINADA

Jawaharlal Nehru Technological University Kakinada

DEPARTMENT OF CIVIL ENGINEERING



LABORATORY FACILITIES





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1. SURVEYING LABORATORY

The Surveying Laboratory provides hands-on training in the principles and practice of surveying and modern geospatial technologies. The laboratory is equipped with conventional and advanced surveying instruments to enable students to carry out field and laboratory exercises for measurement, mapping and spatial data acquisition.



Surveying Laboratory



Computer Laboratory



Theodolite



Total Station



Auto Level



Plane Table



Dumpy Level



Compass



GPS



2. SOIL MECHANICS LABORATORY

The Soil Mechanics Laboratory provides hands-on training to understand the engineering properties of soils and their behaviour under different loading conditions. The laboratory is equipped with standard apparatus to conduct classification, compaction, permeability, shear strength and consolidation tests, enabling students to apply theoretical concepts to practical geotechnical engineering problems.



Soil Mechanics Lab



Triaxial Shear Apparatus



C.B.R Apparatus



Constant Head Apparatus



Triaxial Shear Apparatus



Oven



Direct Shear Apparatus



Vane Shear Apparatus



Old C.B.R Apparatus



Casagrande Apparatus



3. STRENGTH OF MATERIALS LABORATORY

The Strength of Materials Laboratory provides hands-on training to study the mechanical properties of engineering materials and their behaviour under different types of loading conditions. The laboratory is equipped with standard testing machines and accessories to perform tension, compression, hardness and flexural tests, enabling students to verify theoretical concepts and develop practical skills in material testing and structural analysis.



Strength of Material Lab



Brinell Hardness Testing



Compression Testing



Flexural Strength



Universal Testing Machine



Compression Testing



UTM



UTM



Compression Testing



UTM



Compression Testing



Column Testing Machine



4. HYDRAULIC MACHINERY LABORATORY

The Hydraulic Machinery Laboratory provides hands-on training to understand the working principles, performance characteristics and operational behaviour of various hydraulic machines such as turbines, pumps and related equipment. The laboratory is equipped with standard apparatus to conduct experiments on turbines, pumps and flow measurement devices, enabling students to apply theoretical concepts to practical applications in water resources and hydraulic engineering.



HM Lab



Pelton Wheel



Reciprocating Pump



Francis Turbine



Centrifugal Pump



Weir Apparatus



Centrifugal Pump Test



Jet Apparatus



Francis Turbine



Turbo Impulse Wheel



5. ENVIRONMENTAL ENGINEERING LABORATORY

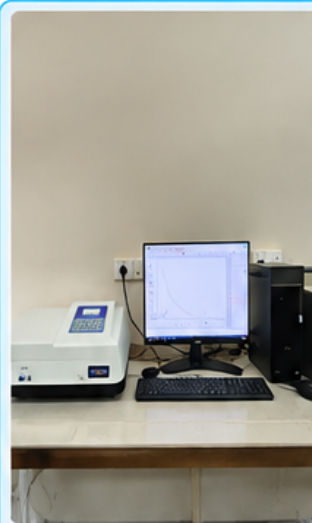
The Environmental Engineering Laboratory provides hands-on training to understand environmental monitoring, air and water quality analysis, and laboratory testing. The laboratory is equipped with standard instruments and facilities to conduct experiments related to ambient air quality, particulate matter analysis, physico-chemical analysis of water and wastewater, and other environmental monitoring studies, enabling students to apply theoretical concepts to practical applications in environmental engineering.



Weather Monitoring Station



Particulate Matter Analyzer



UV Visible Spectrophotometer



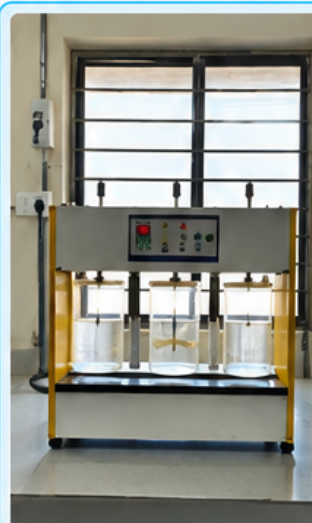
HVAS



Volumetric Analysis



Stack Monitoring Kit



Jar Test



Hot Air Oven



6. TRANSPORTATION ENGINEERING LABORATORY

The Transportation Engineering Laboratory provides hands-on training to study the properties, behaviour and performance of various highway materials and pavement systems. The laboratory is equipped with standard apparatus to conduct tests on bituminous materials, aggregates and subgrade soils, enabling students to understand the principles of highway engineering and develop practical skills in pavement design, construction and quality control.



Transportation Lab



Marshall Stability Test



C.B.R



Benkelman Beam Deflection



Field C.B.R



Bitumen Penetration Test



Ring and Ball Apparatus



Bituminous Mixtures



Aggregate Impact Test



Los Angeles Abrasion Test



7. ADVANCED SOIL MECHANICS LABORATORY

The Advanced Soil Mechanics Laboratory provides practical training in the evaluation of advanced geotechnical properties and soil behaviour under varied loading and drainage conditions. The laboratory supports experiments involving shear strength, consolidation, permeability, compaction and stability analysis, helping students apply soil mechanics principles to engineering design and foundation problems.



Triaxial Shear Apparatus



C.B.R Apparatus



Marshall Stability Test



Automated Compacted Test



Swell Pressure Test



Consolidation Test



Relative Density Test



Direct Shear Apparatus



Variable Head Apparatus



Vane Shear Apparatus

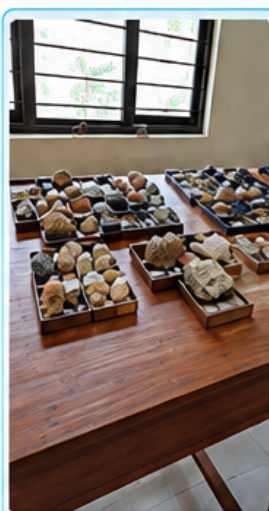


8. GEOLOGY LABORATORY

The Geology Laboratory provides a comprehensive collection of geological specimens including minerals, rocks, fossils and other earth materials. The laboratory enables students to gain practical knowledge on the identification, classification and study of minerals and rocks, their physical properties, geological structures and relevance to civil engineering works. These hands-on sessions help in understanding the earth materials, their engineering behaviour and their application in construction, foundations and infrastructure development.



**Geology Laboratory
Entrance**



**Rock and Mineral
Specimens**



**Geological Educational
Display Boards**



**Mineral and Rock
Collection**



**Display of Geological
Specimens**



**Mineral Specimen
Display Cabinet**



**Rock Specimen
Display Tables**



**Geological Specimen
Collection**



**Specimen Display
Table**



**Geological Specimen
Cabinet**



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9. COMPUTER LABORATORY

The Computer Laboratory provides a dedicated learning environment to support computer-based education and research in Civil Engineering. It enables students to practice engineering software, perform numerical analysis, develop CAD drawings, process and analyze data, and carry out project and research work, thereby enhancing their technical and professional skills.



Computer Laboratory