Bharati Vidyapeeth's

College of Engineering, Lavale

Department of Civil Engineering

Name of laboratory	**Testing of materials**
Description	For buildings and Civil Engineering Structures of all kinds, concrete is the most widely used construction material in the world. In order to attain the objectives of sustainable development and to construct durable concrete structures, applied and fundamental studies are of paramount importance in this field. The Concrete Lab in the Department of Civil Engineering is well equipped with the laboratory equipment's. The laboratory tests that are conducted are, Specific gravity and unit weight of coarse and fine aggregates, determination of normal consistency of cement, initial and final setting time, fineness of cement, determination of compressive strength of cement, bulking characteristics of sand, sieve analysis of coarse and fine aggregates. Workability tests on green concrete by slump cone, compaction factor apparatus, tests on Hardened concrete by compressive Strength, Flexural Strength are also conducted.
Major Equipment	1. Universal Testing Machine 2. Compression Testing Machine 3. Concrete Mixer 4. 4.Aggregate Impact Tester
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Name of laboratory	**Surveying**
Description	Survey engineering is crucial for accurate geospatial data collection, aiding in infrastructure design and land development. It plays a pivotal role in property boundary determination, mitigating legal disputes and facilitating real estate transactions. Additionally, surveying supports environmental management by assessing natural resources and monitoring changes over time. With advancements in technology, such as GPS and LiDAR, survey engineering continues to evolve, improving efficiency and precision in data collection. Overall, survey engineering is indispensable for informed decision-making in civil engineering, urban planning, and environmental conservation.
Major Equipment	1. Total Station 2. 5Sec Electronic Theodolite 3. 10Sec Transit Vernier Theodolite 4. 4. Sec Theodolite
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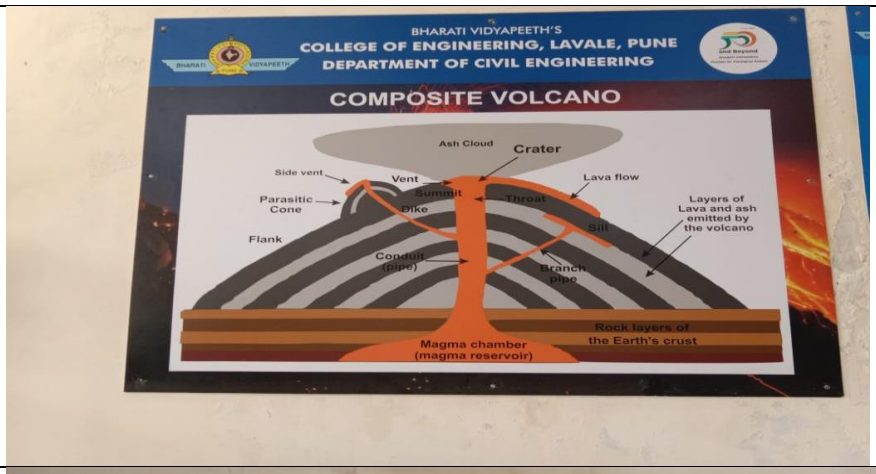
Name of laboratory	**Engineering Geology**
Description	The application of geology to engineering practice is the main emphasis of the Engineering Geology Laboratory. Its goal is to comprehend the interactions between the earth and structures and look into how the earth and its processes affect human activity and constructed structures. We provide knowledge of the characteristics of various rocks and minerals to our undergraduate students. The students will easily understand and study rock engineering for geo-mechanical classification of slopes, and geotechnical and mineralogical studies on urban soils. This laboratory is equipped with Mineral specimens, Rock Specimens, Physical Mineralogy Collections: (Hardness, Fracture, Cleavage & Lustre)
Major Equipment	• Mineral Specimen • Rock Specimen • Structural Geology models • Hardness collection: set of 9 minerals • Lustre & cleavage: set of 10 mineral • Fracture collection : set of 6 minerals

Photo	
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Name of laboratory	**Engineering Mechanics**
Description	The Mechanics of Structures laboratory focuses on educating the students about the basic properties of structural materials and behavior of simple structural elements by performing a series of experiments. The laboratory is well equipped with the essential equipment named as Universal Testing Machine, Impact Testing Machine (Izod And Charpy), Torsion Testing Machine, Abrasion Testing machine.
Major Equipment	• Parallel force Apparatus • space force apparatus • Belt friction apparatus with combined coil and flat belt friction apparatus • Polygon of force apparatus • Slotted weight hanger

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Name of laboratory	**Geotechnical Engineering**
Description	A geotechnical engineering laboratory is a facility equipped to perform various tests and analyses on soil, rock, and other materials related to the earth's surface. These laboratories play a crucial role in civil engineering, environmental engineering, construction projects, and geological research. Geotechnical labs are equipped with specialized equipment for testing the physical, mechanical, and chemical properties of soil and rock samples. This may include equipment for soil classification, compaction, permeability, shear strength, consolidation, and more. Overall, geotechnical laboratories play a crucial role in ensuring the safety, efficiency, and sustainability of civil engineering projects by providing essential data, analysis, and expertise related to soil and rock behavior
Major Equipment	• Hot air oven • Direct shear Test apparatus

	• Tri-Axial shear test apparatus • Unconfined Compression Test Apparatus • Soil Permeability Apparatus
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Name of laboratory	**Environmental engineering**
Description	An environmental engineering laboratory is a specialized facility dedicated to conducting tests, analyses, and research related to environmental science and engineering. These labs play a critical role in studying and addressing environmental issues, monitoring pollution levels, developing sustainable solutions, and ensuring compliance with regulatory standards. One of the primary functions of environmental engineering labs is to test the quality of water sources, including surface water, groundwater, and wastewater. Tests may include analysis for parameters such as pH, dissolved oxygen, biochemical oxygen demand (BOD), chemical oxygen demand (COD), nutrients (nitrogen and phosphorus), heavy metals, pathogens, and various contaminants. Overall, environmental engineering laboratories play a crucial role in protecting human health and the environment by providing essential data, analysis, and expertise for managing and mitigating

	environmental pollution and ensuring sustainable environmental management practices.
Major Equipment	• Jar Test Apparatus • U. V. Visible Spectrometer • RQ-126/D medium Duty stirrer with PMDC Motor • Respirable Dust sampler Amp. 460 • Flame photometer Model 306 • Cod Reflux apparatus
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Name of laboratory	**Computer laboratory**
Description	The Civil Engineering Computer Laboratory is utilized for the purposes of designing, 3D modeling and planning buildings using Auto CAD software. It also involves the structural design and analysis of buildings using STADD Pro software. Additionally, it facilitates the downloading and analysis of remote sensing and GIS data using QGIS software. Furthermore, it enables project planning and monitoring through Microsoft Project Planning. Furthermore, this laboratory will conduct research projects and analysis work in the fields of Surveying, Environmental, and Fluid Mechanics using software.

Major Equipment	• Computer-Intel I3 processor DVD R/W, 500GB HDD, Kingston DDR-III, 4GB RAM, ATX cabinet, Samsung Monitor, etc. • Lenovo branded computer, Intel core I5 processor, 3RD generation, Intel original motherboard, 4GB DDR-III, 500GB HDSATA, DVD R/W, 18.5" LED monitor, OS DOS • HP 1020 LaserJet Printer
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Name of laboratory	**Fluid Mechanics**
Description	The objective of this laboratory is to determine the various parameters related to fluid flow in pipes and in open channels. At present it is equipped with turbines and pumps to carry out experiments like Characteristics of a Pelton Wheel, Characteristics of a Centrifugal Pump determination of velocity profile for open channel flow. The laboratory also houses wind tunnel fitted with necessary instruments to measure lift & drag forces and pressure distribution during the flow over Aerofoils & other objects. The laboratory also houses facilities for carrying out the study of flow over various objects in wind tunnel, open channel flow analysis and Impact of jet on plates

Major Equipment	• Pelton Wheel Turbine • Francis Turbine • Centrifugal Pump • Flume (Tilting) • Wind Tunnel • Impact of JET Apparatus
	
	
Name of laboratory	**Transportation Engineering**
Description	Transportation Engineering Laboratory conducts comprehensive physical testing on aggregate and bitumen to ensure compliance with Indian norms for the building of flexible pavements on roadways. All equipment utilized in experiments and research projects adheres to the Indian standard and is calibrated accordingly. Furthermore, this equipment undergoes regular maintenance and repairs to ensure its suitability for use.
Major Equipment's	• Aggregate crushing Test Apparatus • Aggregate Impact Tester • Los Angeles Abrasion Testing Machine

	• Ductility Testing Machine : IS : 1208 • Centrifuge Extractor, Electrically operated • Marshall Stability and Compaction ASTM D 1559.
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