Adequate and well equipped laboratories, and technical manpower

We have adequate, well-equipped laboratories to support all program-specific curriculum requirements. Qualified technical support staff are available in all laboratories.

S. No.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly Utilization status (all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical Staff	Designation	Qualification
1	Geology Laboratory	5 – 6 per set up, Batch size: 35 - 40	• Metallic Minerals • Non-Metallic Minerals • Igneous Rock Samples • Sedimentary Rock samples • Metamorphic Rock samples • Tiles of Rocks • Resistivity Meter • Terraloc M-6 • ABEM-WADI	6 hours / week	Aftab Ali	Technical Assistant	I.T.I.

2	Structural Engineering Laboratory	5 – 6 per set up, Batch size: 35 - 40	• Universal Testing Machine • Torsion testing machine • Impact testing machine • Hardness testing machine • 3 hinge arch • Bending moment & shear force apparatus • Steel beam apparatus • Curved member	6 hours / week	Ghyas Mohammed	Technical Assistant	High School
3	Hydraulics Laboratory	5 – 6 per set up, Batch size: 35 - 40	• Rain Fall Simulator (Hydrology Apparatus), • Channel Flume • Open Channel Flume • Ring Test Hydro Turbine and Pump • Impacts of Water Jet • Floating body Test • Discharge measuring devices • Infiltrometer • Viscometer • Reynolds Apparatus • Venturimeter with re-circulating system	6 hours / week	Mohd Sadiq	Technical Assistant	Diploma in Civil Engineering

			• Orificemeter with with re-circulating system • Bernouli's Apparatus Orifice Apparatus • Orifice Apparatus				
4	Geomatics Laboratory	5 per set up, Batch size: 35 - 40	• Auto levels (20) • Digital Theodolites (14) • Total Station (7) • GPS (2)	6 hours / week	Noorul Islam Khan	Peon	8th Class
5	Environmental Engineering Laboratory	5 – 6 per set up, Batch size: 35 - 40	• Jar Test Apparatus • pH meter • Turbidity meter • Spectrophotometer • BOD incubator • COD digester • Muffle furnace • Oven • Colony counter • Centrifuge • High volume sampler	6 hours / week	Rumaisha Shoieb Khan	Technical Assistant	Masters in Microbiology

			• Mechanical shaker • Advance biological pilot reactors • Various batch reactors • BOD Incubator • COD Digester • pH meter • Turbidity meter • Distillation Unit • Jar Test Apparatus				
6	Concrete Technology Laboratory	5 – 6 per set up, Batch size: 35 - 40	• Slump Test Equipment • Vee Bee Consistometer • Compaction factor • Sieve Test • Briquette Test • Tensile Strength Test • Compressive Strength Test • Slump Test Equipment, Vee Bee Consistometer • Compaction factor	6 hours / week	Zama Zaidi	Lab Attendant	B. Com.

			• Sieve Test • Briquette Test • Tensile Strength Test • Compressive Strength Test				
7	Soil Mechanics & Foundation Laboratory	3 per set up, Batch size: 35 - 40	• Field density test – sample replacement and core cutter • Vane shear test • Liquid limit criteria • Proctor needle • Proctor compaction test – standard test, modified test • Sieve shaker • Direct shear test • Triaxial test apparatus • Unconfined compaction test apparatus • Moisture meter • Permeability test apparatus – falling head apparatus • Constant head apparatus	6 hours / week	Mohammed Yaser Jalal Ghyas Mohammed	STA Technical Assistant	M. Tech. (Env. Sc. & Engg.) High School
8	Transportation	5 – 6 per	• Los Angeles Abrasion Machine	6 hours /	Ashraf Ali	Technical	High School

	Engineering. Laboratory	set up, Batch size: 35 - 40	• Compression Testing Machine • Impact Testing Machine • Shape Test Apparatus • CBR Apparatus • Ductility Testing Machine • Penetrometer • Ring and Ball Apparatus • Centrifuge Extractor • Radar Speed Gun	week		Assistant	
9	CAD Lab	1 per set up, Batch size: 35 - 40	• Desktops • LCD projector • Printer • Plotter • Server	6 hours / week	Fardin Razi	Civil Draftsman	M. Tech.

Table B.6.1

Cabin /others Facilities of Faculty Members:

S.No	Faculty members	Cabin Number	Cabin Area in sq .m.	Facilities
1	Prof. Gauhar Mehmood	149	17.7	Table, Chairs, Almirah System,Wi-Fi, Sofaset, Printer, AC.
2	Prof. Khalid Moin	26	15.4	Table, Chairs, Almirah System,Wi-Fi, Sofaset, Printer, AC.
3	Prof. Mohammad Shakeel	2	18.3	Table, Chairs, Almirah System,Wi-Fi, Sofaset, AC.
4	Prof. Shamshad Ahmad	148	17.1	Table, Chairs, Almirah System,Wi-Fi, AC.
5	Prof. F. A. Kidwai	17	16.8	Table, Chairs, Almirah System,Wi-Fi, AC.
6	Prof. Quamrul Hassan	25	15.4	Table, Chairs, Almirah System, Sofaset, Wi-Fi, AC.
7	Prof. Nazrul Islam	38	17.6	Table, Chairs, Almirah System,Wi-Fi, AC.
8	Prof. Mohd. Sharif	16	17.4	Table, Chairs, Almirah System,Wi-Fi, AC.
9	Prof. Sirajuddin Ahmad	1	17.1	Table, Chairs, Almirah System,Wi-Fi.
10	Prof. S. M. Abbas	151	11.6	Table, Chairs, Almirah System,Wi-Fi.
11	Prof. Asif Husain	150	17.1	Table, Chairs, Almirah System,Wi-Fi, AC.
12	Prof. Naved Ahsan	12	11.6	Table, Chairs, Almirah System,Wi-Fi.
13	Prof. Kafeel Ahmad	4	12.6	Table, Chairs, Almirah System,Wi-Fi.
14	Dr. Azhar Husain	305	17.6	Table, Chairs, Almirah System,Wi-Fi.
15	Dr. Akil Ahmed	302	14.3	Table, Chairs, Almirah System,Wi-Fi.
16	Mr. S. M. Muddassir	37	17.2	Table, Chairs, Almirah System,Wi-Fi, AC.
17	Dr. S. Shakil Afsar	215 B	17.8	Table, Chairs, Almirah System, Wi-Fi.
18	Dr. Mohd. Umair	3	12.7	Table, Chairs, Almirah, System, Wi-Fi.
19	Dr. Abid Ali Khan	224	10.3	Table, Chairs, Almirah System,Wi-Fi.
20	Mr. Ibadur Rahman	215 A	17.8	Table, Chairs, Almirah System,Wi-Fi.
21	Mr. Nabeel Ahmed	151	11.6	Table, Chairs, Almirah

	Khan (Contractual Faculty)			System,Wi-Fi.
22	Dr. Md. Imtiyaz Ansari (Contractual Faculty)			
23	Dr. Aamir Mazhar (Contractual Faculty)	5	13.5	Table, Chairs, Almirah System,Wi-Fi.
24	Dr. Adnan Mateen Quadri (Guest Faculty)			
25	Dr. Saba Shamim (Guest Faculty)	303	9	Table, Chairs, Almirah System,Wi-Fi.
26	Dr. Md. Arif Faridi	3	12.7	Table, Chairs, Almirah, System, Wi-Fi.

OFFICE STAFF:

S. No.	Name of Staff	Date of Appointment	Designation	Qualification
1	Mohammad Asif Iqbal	20.03.2007	UDC	MA-Human Resource Management
2	Saba Kidwai	09.10.2024	Clerk	BA English honours (Pursuing)
3	Faisal Ashraf	26.09.2013	Store Keeper	PGDCA, B. Sc.
4	Anwar Khan	25.06.2018	Lab Attendant	B. A. , ITI
5	Zama Zaidi	31.12.2021	Lab Attendant	B. Com.

Table B.6.1

Laboratories maintenance and overall ambience

Laboratory Maintenance

Proper maintenance of laboratory equipment is essential to ensure precision in experimental results and to prevent damage. All necessary equipment is available, and lab technicians ensure regular servicing and calibration, both internally and externally, before each session.

- First-aid boxes are available in each laboratory.
- A team from the electrical maintenance section ensures generator operation during power failures.
- Fire safety equipment is available in appropriate locations.
- Equipment is calibrated annually, and breakdown registers are maintained.

Overall Ambience:

All laboratories are equipped with state-of-the-art equipment. They are well-lit, ventilated, and air-conditioned where necessary (e.g., the CAD Lab). Wi-Fi is provided throughout the department, and purified drinking water is available.

Safety measures in laboratories

S. No.	Name of the Laboratory	Safety measures
1	Geology Lab	Minerals & Rocks in showcase, Glassy Windows, No broken samples in showcase.
2	Structural Analysis Laboratory	Fire safety cylinder is installed. All the electrical connections are checked before each use. The students are asked not to stand in front

		of swinging hammer or releasing hammer during Charpy or Izod test. No one is permitted to work in the lab areas alone. In the event of any problems arising while operating a piece of equipment, shut down the equipment and report the problem to the instructor. Keep your working area neat and well organized.
3	Hydraulics Laboratory	First Aid Box is available. Fire safety cylinder is installed. All the electrical connections are checked before each use. Maintain clean and orderly laboratories and work area. Discard immediately unwanted items. Do not leave experiments running unattended.
4	Survey Lab	The important equipments are locked in almirah in the Laboratory. The stands, ranging rods, pegs arrows, staffs etc are kept in iron racks.
5	Environmental Engg Lab	First Aid Box, Fire Safe Cylinders (03), Eye safety Glasses, Gloves, Masks
6	Engineering Material Lab	Fire safety cylinder is installed. Students are asked to keep their working area neat and well organized.
7	Soil Mechanics and Foundation Laboratory	The students are asked to handle with care when they are using weights. The students are asked to wear closed shoes.

		All the electrical connections are checked before each use.
8	Transportation Engg. Laboratory	Students are asked to keep their working area neat and well organized. All the electrical connections are checked before each use.
9	CAD Lab	Fire safety cylinder is installed. All the electrical connections are checked before each use. There is a thorough check in earth connection.

Table B.6.3

Project laboratory

The project laboratory in the department offers students the opportunity to gain valuable hands-on experience in a state-of-the-art environment, where they can become proficient in both the physical and creative skills needed in the field of Civil Engineering. The Project Laboratory plays a key role in promoting practical learning experiences, enabling students to develop innovative proposals and execute their final projects.

Facilities and Utilizations:

1. A project is an activity planned to achieve a specific objective, undertaken to create a product or system.
2. The project laboratory, supported by the aforementioned laboratories, is available, providing students with easy access to the facilities required for their project work.
3. The primary purpose of the laboratory is to provide the space and resources needed by students to complete their projects.

SOME SELECTED LABORATRIES

Concrete laboratory

The Concrete Laboratory is a fundamental facility of the department where plain concrete and concrete reinforced with steel bars are tested. Standard-sized cubes, cylinders, and beams are cast and tested for compressive, tensile, and bending strength. In addition to strength, the workability of concrete is also tested under various water-cement ratios using standard tests.

Beam testing machine

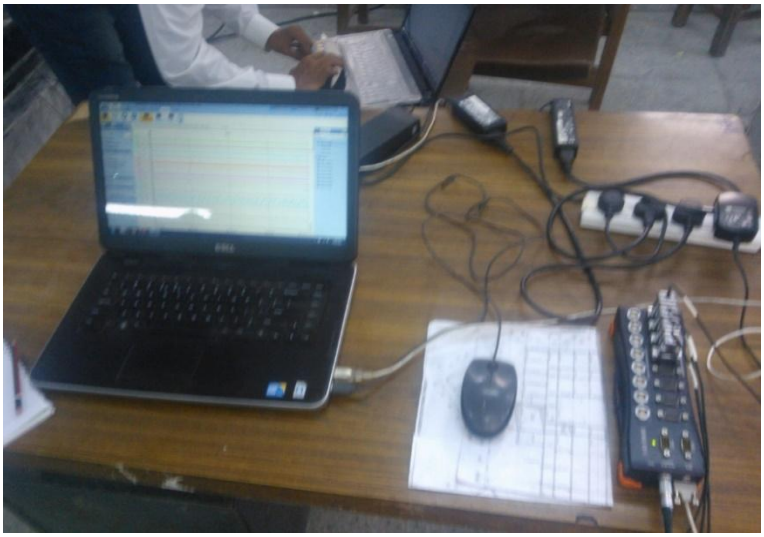
Different shape of concrete cubes after casting and testing

Different shapes of moulds and slump testing moulds

Compression testing machine

Structural Dynamics laboratory

The Structural Dynamics Laboratory is designed for M.Tech Earthquake Engineering students to experimentally verify concepts taught in the classroom. The lab contains twelve experimental models that enable the study of vibration behavior, such as damping, resonance, structural vibration under support motions, and more. This setup provides valuable insights into the dynamic responses of structures under base motions.



Different experimental work along with data acquisition system

An Earthquake (Artificial) in the Department of Civil Engineering, Jamia Millia Islamia

Recently, the Department of Civil Engineering, Jamia Millia Islamia has developed a 'Shake Table Facility' costing Rs 1.00 crore, funded by UGC SAP-DRS phase-II. This is probably the second such facility in the NCR which shall be effectively used to simulate the structural behaviour under any Real Earthquake scenario.

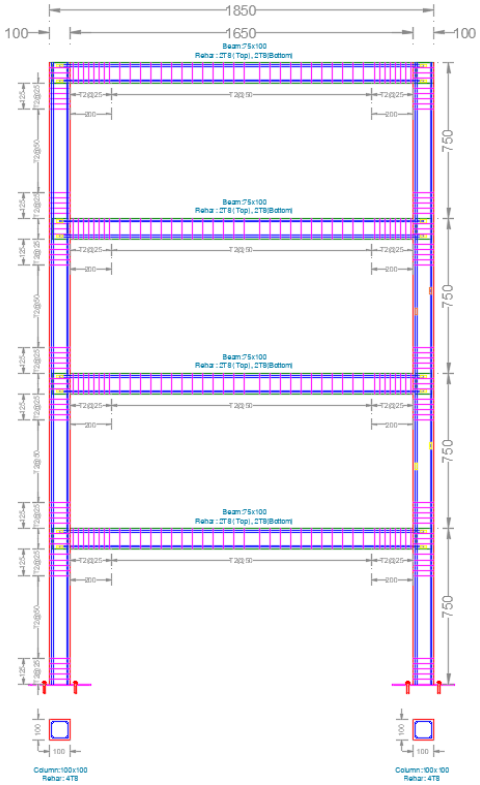
The shake table is used to simulate the structural behaviour under real Earthquake scenario. Catastrophic earthquake in Northridge, Kobe, Turkey, Taiwan, and India have caused severe damage to buildings, bridges, and crucial lifeline infrastructures. The most important lesson learned from earthquakes is that structural engineers must possess the skills to significantly improve structure behaviour to resist earthquake damage and thereby avoid most of the deaths and financial losses.

Past earthquakes have demonstrated that it usually costs less to prepare for earthquakes in advance than to repair the damage afterwards. It is urgent to train a new generation of civil engineers that possesses understanding of seismic engineering who are qualified in design of new buildings and retrofit of the existing structures.

It is particularly important in Delhi, located in high seismic region, that structural engineers have a good understanding of structural dynamics principles and failure modes in structures due to the heavy emphasis on designing and retrofitting of structures for earthquake loads.

A **2m x 2m** shake table has been installed at civil engineering department, Jamia Millia Islamia University, so that students have an opportunity to learn about the earthquake engineering and seismic resistant design of structures. This facility is for shaking scaled structural models or building components with a wide range of simulated ground motions, including reproductions of recorded earthquakes time-histories. The specimens are fixed to the platform and shaken, often to the point of failure. Using video records and data from transducers, it is possible to interpret the dynamic behaviour of the specimen.

An experimental study of 4 story RCC frame has been carried on recently(12.09.2020). The natural frequency, acceleration/velocity and displacement and damages of the structures has been recorded and simulations were carried out to promote the research in this area.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Stages of Casting of Model

Damges after testing to 2.0g PGA

List of Equipment in Surveying and Remote Sensing & GIS Lab

The curriculum of B. Tech (Civil) includes two courses, namely, Surveying and Geomatics which are taught in Semester III and Semester IV. Bases on the theory, experiments are conducted in two labs (Surveying Lab and Geomatics Lab) in Semester III and Semester IV. A survey camp of one week is also conducted in Semester V. A comprehensive exercise of surveying is carried out using auto levels, theodolites and total station to prepare to topographical map of a hilly terrain in the camp.

Name of Equipment **Quantity**

- Total Station (GeoMax): 05No.
- Total Station (Nikon DTM-521): 01 No.
- Total Station (Leica TC-305): 01 No.
- GPS (GeoExlorer 3C): 01 Set
- Digital Theodolite (Geomax): 12 No.
- Digital Theodolite (Horizon): 04 No
- Digital Theodolite (Nikon): 03 No.
- Vernier Theodolite: 16 No.
- Tacheometer: 02 No.
- Auto Level (Nikon): 06 No.
- Auto Level (Horizon): 03 No.
- Auto Level (Jogar): 11 No.
- Dumpy Level: 13 No.
- IOP levels: 02 No.
- Plane Tables: 15 No.
- Surveyor's Compass: 13 No.
- Prismatic Compass: 04 No.
- Mirror Stereoscope: 02 No.
- Pocket Stereoscope: 10 No.
- ERDAS IMAGINE Software: 01 License
- ArcGIS Software: 02 Licenses

CAD Laboratory

List of equipment and different softwares in CAD lab along with their amount and quantity is mentiones below:

S.No.	Location	Name of Particulars	Date	Amount.	Qty.
1	CAD Lab	Desktop Computer Optiplex 780 (Dell Core 2 Duo 3.33 GHz)	12.07.10	₹ 10,50,000	30
2	CAD Lab	R-910 Server Intel Xeon Core - Dell	03.02.11	₹ 4,01,904	1
3	CAD Lab	Plotter Canon IPF 750	15.11.10	₹ 1,69,244	1
4	CAD Lab	Printer Laserjet H.P 5200N	31.03.10	₹ 56,945	1
5	CAD Lab	Bentley Class Room- Academic Bundle Software	11.03.2020	₹ 415000	1
6	CAD Lab	STAD PRO Software	20.03.2011	₹ 25000	1
7	CAD Lab	STRAP Version V.9 (Auto Civil Software) upgrade V.9 to V.11	03.03.2005	₹ 22500	1
8	CAD Lab	Auto Civil Plus Software (Educational Version)	27.03.2002	₹ 60000	2
9	CAD Lab	ZWCAD 2010 Professional 2D/3D designing (Educational Pack)	14.09.2010	₹ 210000	99
10	CAD Lab	Primavera Contractor 2000	14.09.2010	₹ 340000	5
11	CAD Lab **(NEW COMPUTERS)**	Dell Optiplex Small form Factor Intel Core15-9500/8GB 1x8GB DDR4 (Single Module expendable to 32Gb min 2 slots) 2666MHz UDIMM/ITB 7200epm SATA Hard Disk drive/9th Gen/Dell Monitor 19.5 inch/USB Keyboard & Mouse (Wired)/ with Integrated Graphics with 2GB RAM/Preloaded Windows 10 Professional	16.12.2020	₹ 204335	5

Environment Engineering Laboratory

Various machines are available to promote the research work. description and their rates are mentioned below

Photograph	Description
	Centrifuge Make : REMI Model : C-24
	COD Digester Make: HACH USA Model: DRB 200
	Microscope Make: Motic Model: S/N S 145467

	Spectrophotometer Make : HACH USA Model : DR-6000
	Weighing Balance Make: SACLE TECH Model: SAB-224CL
	BOD Incubator Make: VINDISH INSTRUMENTS PVT.LTD. Model: 202
	Refrigerator Make: Celfrost Model: CF4002D

	Homogenizer Make: Benchmark Scientific Model: D1030-E

Different equipments along with their cost in Environment Engineering laboratory

S. No.	Name of Equipment	Cost (Rs.)
1.	COD Digestion Assembly	30000
2.	Oven	25000
3.	pH Meters	15000
4.	Turbidity Meter	20000
5.	Distillation Assembly	10000
6.	Spectrophotometer	100000
7.	Jar Test Apparatus	15000
8.	Weighing Balance	35000

Environmental Engineering Lab (PG)

S. No.	Name of Equipment	Cost (Rs.)
1.	Bacteriological Incubator	40000
2.	pH Meters	15000
3.	Distillation Assembly	10000
4.	Spectrophotometer	25000
5.	Gas Chromatograph	400000
6.	Mechanical Shaker	20000
7.	Colony Counter	15000
8.	BOD Incubator	50000
9.	Centrifuge	15000
10.	Kjeldahl Apparatus	15000
11.	Mercury Analyzer	20000
12.	High Volume Sampler	15000
13.	Muffle Furnace	20000

Funded Research Project and Simulation Lab

S. No.	Name of Equipment	Cost (Rs.)
1.	COD Digester DRB 200	150000
2.	pH Meters	20000
3.	Spectrophotometer	700000
4.	Orbital Incubator Shaker	40000
5.	BOD Incubator	150000
6.	Refrigerated Centrifuge	170000
7.	Deep Refrigerator	60000
8.	Multiparameter	650000
9.	Microscope	50000
10.	Muffle Furnace	15000
11.	Laminar Air Flow Apparatus	50000
12.	Filter Assembly	60000
13.	Weighing Balance	70000
14.	Mechanical Stirrer	50000
15.	Homogenizer	290000
16.	Peristaltic Pumps	90000
17.	Water Bath	15000
18.	Autoclave	20000
19.	Magnetic Stirrers	10000
20.	Nitrogen Gas Cylinder	10000
21.	Turbidity Meter	20000
22.	Desiccators	10000
23.	Auto Pipettes of varying capacity	35000