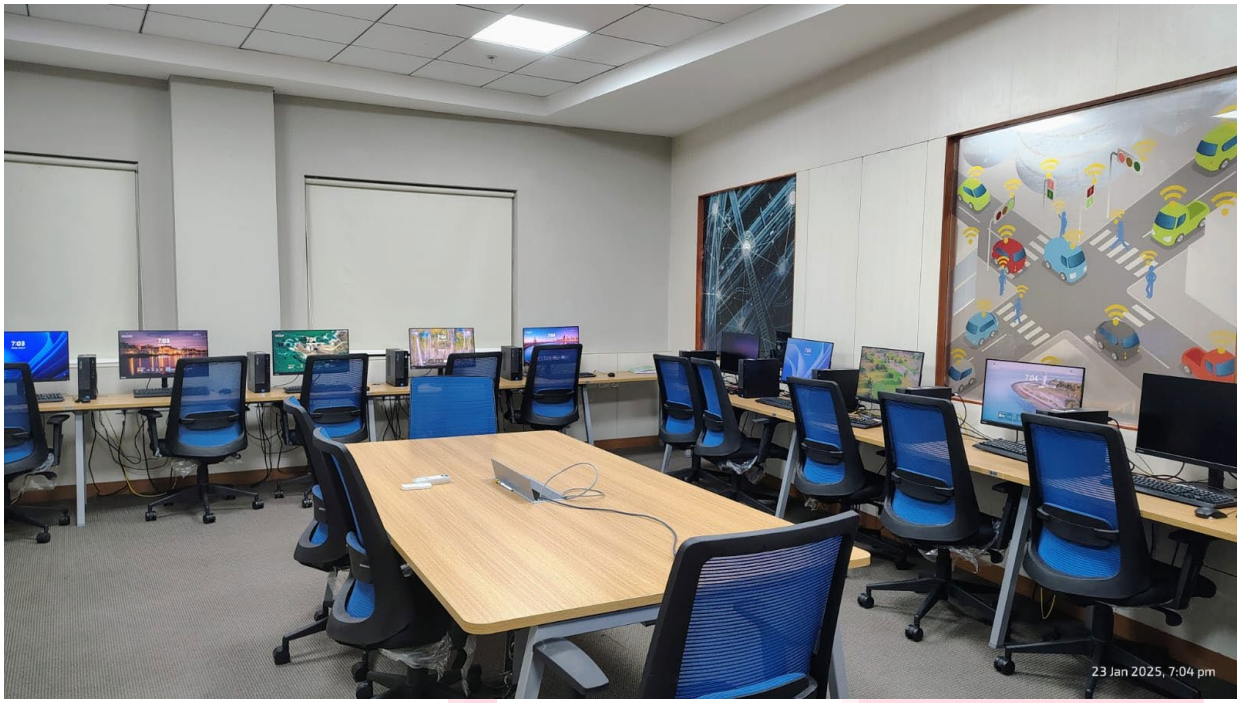
Transportation Computational Lab

The Transportation Computational Lab is equipped with a comprehensive suite of industry-standard software, including PTV VISSIM, VISUM, Vistro, Bentley OpenRoads, QGIS, and various statistical packages. This state-of-the-art environment supports advanced research, project-based learning, and the development of essential skills for careers in transportation engineering. Below is a detailed overview of the software tools available in the lab.



Name of the Software	Description
Open roads (Bentley Package)	OpenRoads by Bentley is a commercial software for designing and analyzing roads and highways, offering 3D modeling, geometric design, and integration with open standards.
PTV VISSIM	PTV VISSIM is a traffic simulation software used for modeling and analyzing transportation systems. It helps in assessing traffic flow, optimizing traffic signal timing, and planning for infrastructure projects.

PTV VISUM	PTV VISUM is a traffic planning software used for modeling and analyzing transportation networks. It helps in forecasting traffic demand, optimizing routes, and evaluating infrastructure performance.
PTV VISTRO	PTV Vistro is a traffic analysis software used for modeling and evaluating intersection performance, traffic signal operations, and roadway capacity. It supports quick analysis for both urban and suburban areas, helping in traffic planning and optimizing traffic flow
QGIS	QGIS is an open-source geographic information system (GIS) used for mapping, spatial analysis, and managing geospatial data. It supports a wide range of file formats and offers tools for analyzing and visualizing transportation networks, land use, and more, making it versatile for various transportation planning tasks
ArcGIS	ArcGIS is a powerful GIS software used for mapping, spatial analysis, and managing geographic data. It helps in creating detailed maps, analyzing transportation networks, and visualizing infrastructure projects. With advanced tools, it supports decision-making in transportation planning and management.
CIVIL 3D	Civil 3D is a design and drafting software by Autodesk used for civil engineering projects, including transportation infrastructure. It helps with road design, grading, drainage, and earthworks, offering tools for 3D modeling, analysis, and visualization of transportation networks and land development projects.
AutoCAD	AutoCAD is a widely used drafting and design software by Autodesk. It helps create precise 2D and 3D drawings for various fields, including transportation engineering. It's commonly used for road plans, layouts, and detailed infrastructure designs, offering tools for accurate drafting and documentation.

KenPave 	KENPAVE is a pavement analysis software used for designing and evaluating pavement structures. It helps in the analysis of flexible and rigid pavements, assessing factors like stress, strain, and deflection to optimize pavement performance and durability for transportation projects.
SmartPLS Smart PLS Next Generation Path Modeling	SmartPLS is a software used for structural equation modeling (SEM) and path analysis. It helps analyze complex relationships between variables, making it useful for research in transportation, urban planning, and other fields where understanding causal relationships is essential.
NLOGIT NLOGIT	NLOGIT is a software used for advanced econometric and statistical modeling, particularly in transportation planning. It is commonly used for discrete choice modeling, helping analyze travel behavior, mode choice, and route selection to support transportation decision-making and planning.
MATLAB	MATLAB used to model, simulate, and develop controls for systems and components of different types of electrified transportation, including vehicles, aircraft, ships, railway systems, and rolling stock and locomotives.
Python	Python empowers transportation engineers to analyze traffic flow, plan transportation systems, and visualize data. Libraries like Pandas, NumPy, and Matplotlib enable efficient data manipulation, numerical computation, and insightful visualizations for tasks like traffic modeling, route optimization, and infrastructure evaluation.