CSiBridge Complete Workflow: From Modelling to Load Rating

1. TARGET AUDIENCE:

This course is designed for civil engineering students, structural engineers, BIM engineers, CAD technicians, and professionals who want to master bridge analysis and design using CSiBridge for real-world projects. It is also beneficial for site engineers, consultants, infrastructure engineers, architects, and professionals transitioning into bridge design and analysis workflows, especially those working with Indian Standards (IS Codes) and global design practices.

2. COURSE OBJECTIVE:

The objective of this course is to provide a complete understanding of bridge modeling, analysis, design, and rating workflows using CSiBridge. It focuses on developing analytical models of bridges, applying realistic loads (dead, live, moving, wind, seismic), performing staged construction and dynamic analysis, and designing steel and concrete bridge elements as per international codes. The course emphasizes practical implementation through real-world bridge projects and integration with BIM tools like Autodesk Revit.

3. COURSE OUTLINE:

The course comprises **32 hours** of theory and hands-on practical training and is divided into **10 modules**. Each module includes practical exercises and assignments covering bridge modelling, load application, staged construction, analysis, design, rating, and complete bridge projects.

Module 1: Course Orientation & Interface

- Introductory tutorial
- Navigating the interface
- Workflow overview

Module 2: Parametric Bridge Modelling

- Bridge Wizard basics
- Segmental balanced-cantilever bridge modelling
- Geometry and material definitions

Module 3: Staged Construction Modelling

- Modelling using staged construction
- Construction sequencing and scheduling

Module 4: Loading Fundamentals

- Lane definitions and moving loads
- Dynamic vehicle loading
- Custom load applications

Module 5: Staged & Advanced Analysis

- Staged analysis workflows
- Eigen and Ritz analysis
- Solver optimization

Module 6: Steel Bridge Design

- Design of steel girder bridges
- Code-based checks and reporting

Module 7: Concrete Bridge Design

- Precast concrete composite girder bridges
- Prestressed concrete box girders
- Automated seismic design

Module 8: Optimization & Enhancements

- CSiLoadOptimizer

- Productivity enhancements (v23, v25 updates)

Module 9: Load Rating & Evaluation

- Load rating factors
- Capacity evaluation
- Practical rating workflows

Module 10: Documentation & Case Studies

- Generating reports and deliverables
- Exporting results and drawings
- Case studies: highway, cable-stayed, suspension bridges