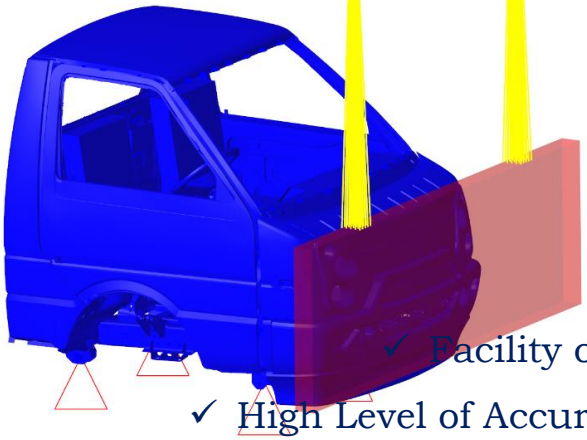
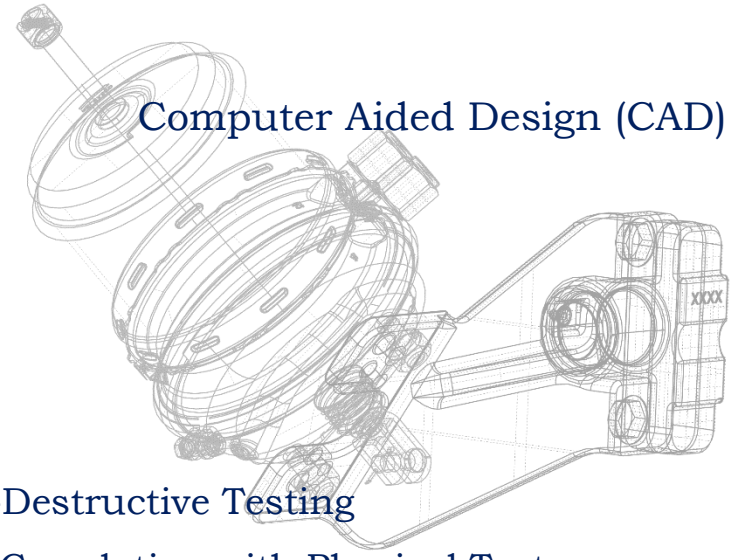
VIRTUAL SIMULATION LAB

Computer Aided Engineering (CAE)



Computer Aided Design (CAD)



- ✓ Facility of Non-Destructive Testing
- ✓ High Level of Accuracy & Correlation with Physical Test
- ✓ Highly Versatile
- ✓ Cost-Effective & Time Efficient

About Us

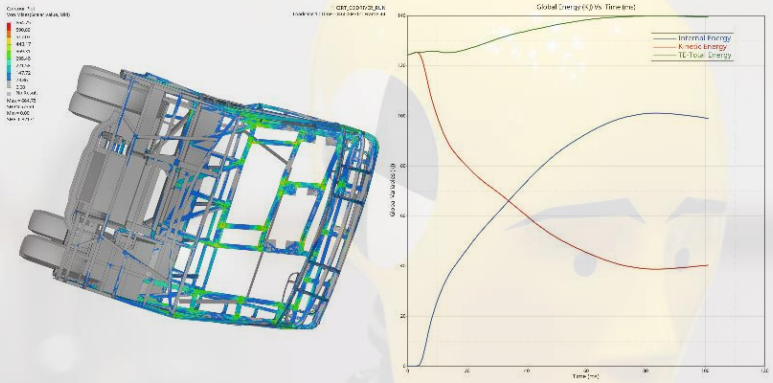
- ✓ Established under Vehicle Crash Lab (VCL) of CIRT, in January 2024
- ✓ Expertise in Finite Element Analysis (FEA) & Computer Aided Design (CAD)
- ✓ Development of vehicle structure, automotive components & industrial equipment
- ✓ Testing as per CMVR under simulation & providing solutions to design problems

VSL/FEA Competencies

- ✓ Evaluation of
  - i. Strength of Bus Superstructure (Rollover Test) as per AIS:031/ AIS:119 / AIS:052 (Clause 6.1) / ECE R66 / ECE R107
  - ii. Bus Stability Angle determination as per AIS:052 (Clause 6.2) / ECE R107
  - iii. Lateral Protection Device (LPD) as per IS:14682
  - iv. Natural Frequency (Modal Analysis) of Bus Superstructure as per AIS:153
  - v. Strength of Cab of Commercial Vehicle (Front Impact Test, Roof & Rear Wall Strength Test) as per AIS:029 (Part A, B & C) / ECE R29
  - vi. Analysis of Front Underrun Protection Device (FUPD) as per AIS:069
  - vii. Analysis of Rear Underrun Protection Device (RUPD) as per IS:14812
  - viii. Analysis of Truck Load Body Strength as per AIS:093
  - ix. Trailers as per AIS:113
- ✓ FOPS Evaluation as per IS/ISO:3449
- ✓ ROPS Evaluation as per IS/ISO:3471, IS:11821 Part-II, EU-1322/2014
- ✓ Car Crash test analysis as per AIS:197, AIS:098, AIS:099
- ✓ Airbag, Seat belt modelling & Full vehicle crash analysis
- ✓ Analysis & simulation of electrical components, braking of powertrain & transmission
- ✓ Evaluation of Bus Superstructure Design as per MoUD UBS-II Requirements
- ✓ Any other FEA testing requirement as per National/ International Standard which comes into force regarding Computer simulation.

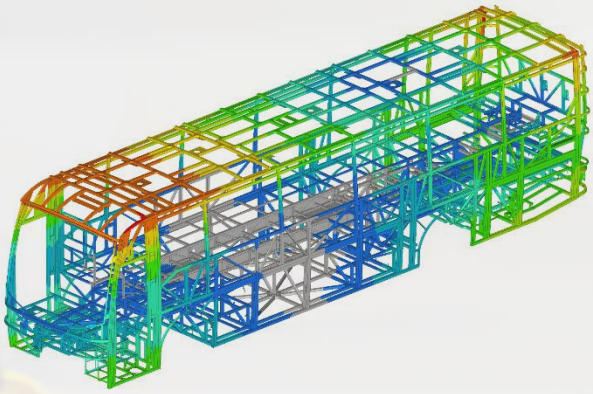
- HyperLife – Fatigue Life Estimation & Durability Test
- AcuSolve – CFD & Thermal Simulation
- MotionSolve – Multibody Dynamics Simulation
- HyperMesh – High-fidelity Finite Element Modelling
- Virtual Wind Tunnel - External Aerodynamic Studies
- HyperMesh NVH - Advanced platform for full vehicle NVH simulations
- LS-Dyna – Dynamic Analysis of Braking, Transmission Components

One Stop Solution for Mechanical Simulation, CAD & Vehicle Certification

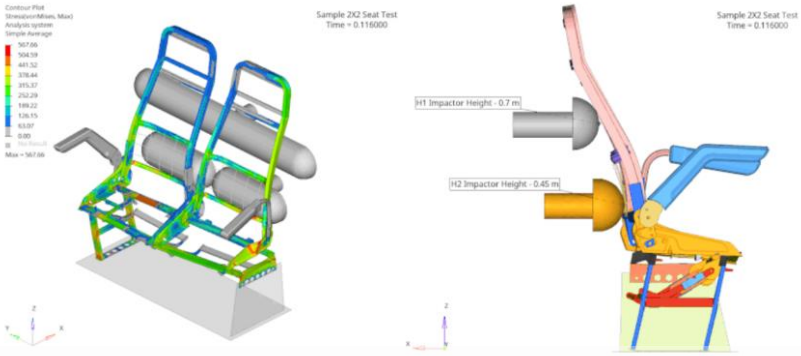


Get Reliable, Fast and Accurate Results with FEA analysis of complete bus as per CMVR

Conformity to safety of bus, with Non-Destructive Analysis



Build simulation models even for highly complex structures, verification with Modal Analysis in FEA



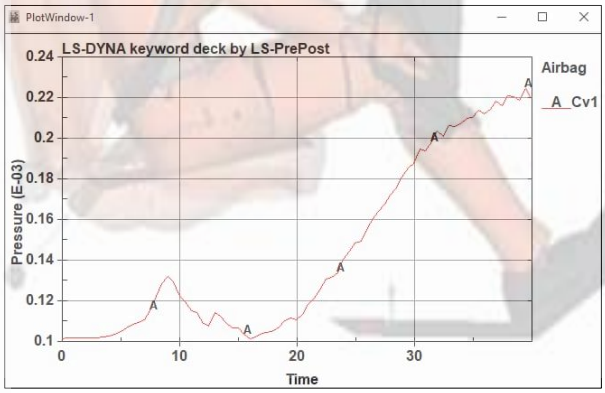
Simulate & Verify Every Aspect of Designed Components for Safety & Economic Manufacturing

Testing

Evaluation

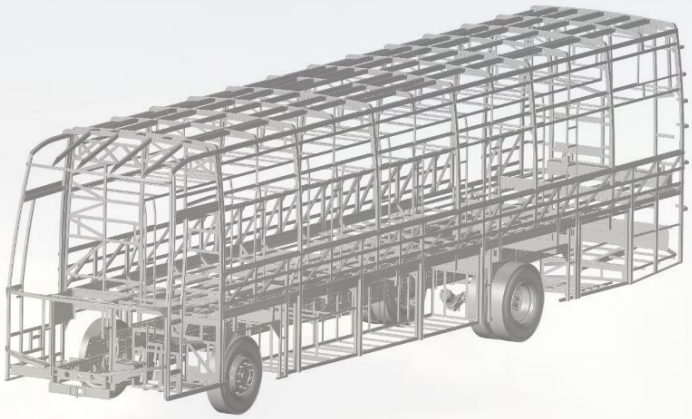
Validate stress, strain, displacement, energies, pressure & much more with Iterative Design Improvements

Creation



Perform CAD operations like,

- ✓ Parametric Part modelling and CAD customization
- ✓ Design of Interior and Exterior parts
- ✓ Full Vehicle Integration and design of under-body parts
- ✓ Adaptation of existing design to new vehicle variants
- ✓ Drawings generation for manufacturing



SOLIDWORKS 2024

ALTAIR HyperWorks 2019.1/2022.3/2023

Ansys / LS-DYNA R 11 / R 14

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