

**ATRIA INSTITUTE OF TECHNOLOGY**  
**Department of Mechanical Engineering**

**THE COMPUTATIONAL**  
**MECHANICS**  
**LABORATORY**

**THE COMPUTATIONAL MECHANICS LABORATORY** is the newest addition in the center of excellence labs at the Department of Mechanical Engineering. This lab came into existence in 2019 and is currently supervised by **Dr. Harish Kumar N S, Assistant Prof.**, in the Department of Mechanical Engineering.



**THE COMPUTATIONAL  
MECHANICS LABORATORY.**

**Dr. Harish Kumar N S**

Assistant Professor  
Department of Mechanical Engineering  
Atria Institute of Technology

The Computational Mechanics Lab at Atria Institute of Technology was established in 2019 in collaboration with Dassault System Solutions. As a part of academia-industry interface, students are involved in projects across a gamut of domains such as aerospace, automotive, electronics, biomechanics and heavy equipment industries. The software package consists of the following:

- ABAQUS Suite - which provides complete numerical solutions for sophisticated engineering problems.
- FE Safe Suite – provides safety features for critical components with increased fatigue life, enabling users to include complex loading patterns and multi-axial fatigue and other safety capabilities.
- Tosca Suite - provides powerful optimization solutions for lightweight, stiff and durable parts to maximize performance and discover new design possibilities.

The following analyses are taught as part of the curriculum:

- Linear Static Analysis



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- Nonlinear Analysis
- Geometric Non-Linearity
- Material Non-Linearity
- Interaction (Contact) Non-Linearity
- Explicit Dynamic Analysis
- Thermal Analysis
- Fatigue Analysis
- Coupled Field Analysis
- Crash Analysis
- CFD Analysis

A student undergoing this training stands a good chance of securing employment in the “CAE-Driven Design Industries”.