



Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex

Report of Workshop on Advanced CATIA Assembly Design for Automotive and Mechanical Applications

Topic: Advanced CATIA Assembly Design for Automotive and Mechanical Applications

Organized by: Department of Automobile Engineering, Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex. (In Association with IQAC)

Speaker: Soumen Diyan, Senior Consultant, Ardent Computech Pvt. Ltd.

Date: 14th September 2026

Time: 12:30 PM onwards

Mode: Offline, Room No.: 115

No. of Participation: 32

Introduction:

The Department of Automobile Engineering of Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex in association with IQAC organized a technical workshop on “**Advanced CATIA Assembly Design for Automotive and Mechanical Applications**” on **14th September 2026 from 12:30 PM onwards**.

The workshop was conducted with the objective of providing B.Tech students of the department with practical exposure to advanced assembly design concepts using CATIA, a widely used computer-aided design and engineering software in the automotive and mechanical industries.

The session was conducted by Mr. Soumen Diyan, Senior Consultant, Ardent Computech Pvt. Ltd., who provided valuable insights into the application of CATIA for developing, assembling, and managing complex mechanical and automotive components. The workshop served as an important platform for bridging theoretical knowledge with practical industrial applications.

Background:

Computer-Aided Design (CAD) plays a vital role in the design and development of modern automotive and mechanical systems. CATIA is extensively used in industries for three-dimensional modelling, assembly design, product development, engineering analysis, and design validation.

For students of Automobile Engineering, knowledge of assembly design is particularly important as automotive products consist of numerous interconnected components and sub-assemblies. Understanding assembly constraints, component positioning, design intent, and product structure enables students to develop practical skills relevant to automotive design and manufacturing industries.

The workshop was therefore organized to enhance students' understanding of advanced assembly design techniques and familiarize them with industry-oriented CAD practices.

Objectives:

The primary objectives of the workshop were:

- To introduce students to advanced concepts of CATIA assembly design.
- To enhance students' practical understanding of three-dimensional assembly modelling.
- To familiarize students with assembly constraints and component positioning techniques.
- To demonstrate the application of CATIA in automotive and mechanical product development.
- To develop students' ability to create and manage complex assemblies.
- To provide exposure to industry-oriented CAD design practices and workflows.
- To bridge the gap between academic learning and practical industrial applications of CAD software.
- To enhance students' employability and technical competencies in automotive and mechanical design.

Overview of the Webinar:

The workshop commenced with an introductory discussion on the significance of CATIA in modern automotive and mechanical product development. The speaker explained various aspects of assembly design and demonstrated the application of CATIA through practical examples.

Key highlights of the session included:

- ❖ **Introduction to CATIA Assembly Design:** An overview of the CATIA environment and its relevance to automotive and mechanical engineering applications was provided.
- ❖ **Assembly Modelling:** The participants were introduced to the process of creating and managing three-dimensional assemblies using individual components.
- ❖ **Component Insertion and Positioning:** The procedure for inserting components into an assembly and positioning them accurately was demonstrated.
- ❖ **Assembly Constraints:** Various assembly constraints and their significance in defining the relative position and movement of components were discussed.
- ❖ **Application in Automotive Design:** The speaker explained how CATIA assembly design techniques can be applied to automotive components, mechanisms, and sub-assemblies.
- ❖ **Product Structure and Assembly Management:** Students were introduced to the importance of proper product structure and systematic management of components in complex assemblies.
- ❖ **Practical Demonstration:** Practical demonstrations were conducted to help students understand the application of assembly design tools and techniques.
- ❖ **Industry-Oriented Design Practices:** The session highlighted the importance of accuracy, design intent, systematic modelling, and engineering practices followed in professional CAD environments.
- ❖ **Interactive Discussion:** Students interacted with the speaker and discussed various technical aspects and practical challenges associated with CATIA-based design and assembly.

Learning Outcomes:

The programme enriched participants with the following takeaways:

- ❖ **Enhanced CAD Knowledge:** Improved understanding of CATIA and its applications in automotive and mechanical engineering.
- ❖ **Assembly Design Skills:** Developed a better understanding of creating and managing three-dimensional assemblies.
- ❖ **Constraint Application:** Gained knowledge regarding the application of assembly constraints for accurately positioning components.
- ❖ **Automotive Applications:** Improved understanding of how CATIA can be utilized for automotive component and sub-assembly design.
- ❖ **Practical Exposure:** Gained practical exposure to industry-oriented CAD tools and assembly design workflows.
- ❖ **Design Understanding:** Developed an appreciation of systematic product structure, component relationships, and design intent.
- ❖ **Industry Readiness:** Enhanced technical competency and awareness of the skills expected from engineering professionals working in CAD and automotive design domains.
- ❖ **Career Development:** The workshop motivated students to further develop their CAD skills for academic projects, internships, placements, and future professional opportunities.

Conclusion:

The technical workshop on “**Advanced CATIA Assembly Design for Automotive and Mechanical Applications**”, organized by the Department of Automobile Engineering, was an informative and valuable academic initiative.

The workshop successfully provided students with practical exposure to advanced CATIA assembly design concepts and demonstrated their relevance to automotive and mechanical engineering applications. The interaction with **Mr. Soumen Diyan, Senior Consultant, Ardent Computech Pvt. Ltd.**, enabled students to gain valuable insights into industry-oriented CAD practices and applications.

The programme served as an effective platform for enhancing students' technical knowledge, practical skills, and industry readiness. It also strengthened the connection between classroom learning and the practical requirements of the automotive and mechanical design industries.

Overall, the workshop contributed significantly towards developing the students' competency in CAD-based assembly design and encouraged them to explore advanced design tools and technologies for their academic and professional development.



Workshop on “Advanced CATIA Assembly Design for Automotive and Mechanical Applications” conducted by department of Automobile Engineering in association with IQAC on 14/09/2026