



# Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex

## Report of Workshop on Advanced Features and Manufacturing Drawings in Catia Generative Sheet Metal Design

**Topic:** Workshop on Advanced Features and Manufacturing Drawings in Catia Generative Sheet Metal Design

**Organized by:** Department of Automobile Engineering, Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex

**Speaker:** Mr. Soumen Diyan, Senior Trainer and Consultant, Ardent Computech Pvt. Ltd., Kolkata

**Date:** 24th August 2025

**Time:** 02:30 pm onwards

**Mode:** CAD Laboratory [Room No.: 115]

**No. of Participation:** 27

### Introduction:

The Department of Automobile Engineering of Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex was organized a workshop on “Advanced Features and Manufacturing Drawings in Catia Generative Sheet Metal Design” on 24th September, 2025 from 02:30 pm onwards in CAD Laboratory [Room No.: 115]. This workshop was conducted to strengthen the practical knowledge of students in modern Computer-Aided Design (CAD) applications. The session was delivered by Mr. Soumen Diyan, Senior Trainer and Consultant at Ardent Computech Pvt. Ltd., Kolkata, who has extensive expertise in CAD/CAM tools. The workshop aimed at providing participants with advanced-level exposure to CATIA software, focusing on sheet metal design and manufacturing drawings essential in the automotive and manufacturing sectors.

### Background:

With the rising demand for precision engineering and automation, CAD tools like CATIA have become indispensable in product design, sheet metal fabrication, and industrial applications. The Generative Sheet Metal Design workbench in CATIA enables designers to create, validate, and modify sheet metal components efficiently while considering real-world manufacturing constraints. Understanding advanced features and the ability to generate accurate manufacturing drawings are critical for engineers, as they directly impact design feasibility, cost, and production quality. This workshop was conceptualized to bridge the gap between academic learning and industrial applications, ensuring students gain practical exposure to tools used by professionals worldwide.

### Objectives:

The primary objectives of the workshop were:

1. To familiarize students with advanced features of CATIA Generative Sheet Metal Design.

2. To provide hands-on knowledge of creating, editing, and validating sheet metal components.
3. To explain the process of generating accurate manufacturing drawings.
4. To connect classroom-based CAD learning with industry requirements.
5. To enhance employability by imparting software skills demanded in the automotive sectors.

### **Overview of the Webinar:**

The session began with a welcome address by Mr. Kalyan Mukherjee, TiC, Department of Automobile Engineering. Mr. Diyan started by highlighting the importance of sheet metal design in industries such as automotive, aerospace, and heavy machinery.

### **Key highlights of the workshop included:**

- **Introduction to the Generative Sheet Metal Design Workbench:** Overview of user interface, commands, and tools specific to sheet metal design.
- **Advanced Features in Sheet Metal Design:** Demonstrations on wall creation, bends, flanges, hems, beads, louvers, and cutouts, along with design validation.
- **Design to Manufacturing Workflow:** Explanation of unfolding sheet metal parts into flat patterns and ensuring manufacturability through bend allowance and relief features.
- **Manufacturing Drawings:** Detailed guidance on generating 2D drawings from 3D sheet metal models, including dimensions, tolerances, annotations, and material specifications.
- **Difference between AutoCAD, CATIA, and SolidWorks:**
  - ✓ **AutoCAD** – widely used for 2D drafting and basic 3D modeling, best suited for architectural and civil applications.
  - ✓ **CATIA** – powerful for complex 3D modeling, generative sheet metal design, and aerospace/automotive applications with advanced simulation features.
  - ✓ **SolidWorks** – user-friendly software ideal for mechanical design, product development, and moderate-level 3D modeling with integrated analysis tools.
- **Best Practices & Industry Standards:** Insights into industrial approaches for reducing design errors, optimizing sheet usage, and meeting production standards.
- **Interactive Session:** Participants engaged actively, clarifying doubts regarding real-world challenges, software commands, and career pathways in design engineering.

### **Learning Outcomes:**

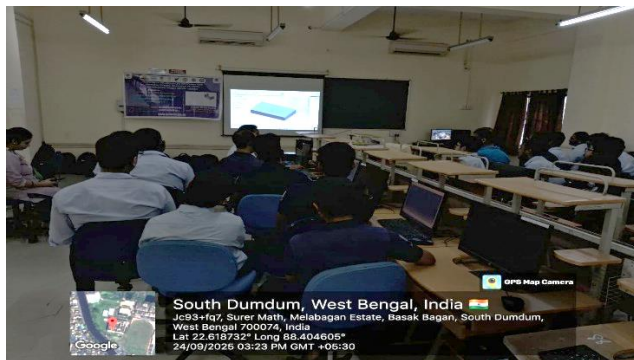
The workshop provided significant value, and students gained the following insights:

- Improved confidence in using CATIA for advanced sheet metal design.
- Understanding of sheet metal manufacturing considerations, such as bend allowances, reliefs, and unfolding.
- Ability to generate professional manufacturing drawings aligned with industrial standards.

- Awareness of how CAD models are integrated into the product lifecycle, from design to production.
- Knowledge of how CATIA skills enhance employability in industries like automotive, and manufacturing.

### Conclusion:

The workshop on Advanced Features and Manufacturing Drawings in CATIA Generative Sheet Metal Design by Mr. Soumen Diyan proved to be highly informative and practical. It successfully bridged the gap between academic learning and industrial requirements by equipping students with advanced software skills. The session highlighted the significance of CAD proficiency in modern engineering careers and inspired participants to explore further opportunities in design and manufacturing fields. The inclusion of comparative insights on AutoCAD, CATIA, and SolidWorks added significant value, enabling participants to understand software selection for different engineering applications. The institution expressed its gratitude to Mr. Diyan and Ardent Computech Pvt. Ltd. for conducting the workshop and reaffirmed its commitment to organizing more such industry-focused training sessions to prepare students for future professional challenges.



Workshop on Advanced Features and Manufacturing Drawings in Catia Generative Sheet Metal Design conducted by department of Automobile Engineering on 24/09/2025