NEW HORIZON COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
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# Workshop Conducted by the Department of Mechanical Engineering on

# "Design Drawing and Engineering Visualization"


**Date:** 13th March 2025
**Venue:** Industry 4.0, New Horizon College of Engineering
**Organized by:** Department of Mechanical Engineering, New Horizon College of Engineering
**Facilitator:** Mr. Balachandra N Pawar, Founder and Director, Seshnag Technologies

## 1. Introduction

On 13th March 2025, the Department of Mechanical Engineering at New Horizon College of Engineering organized a workshop titled "Design Drawing and Engineering Visualization." The workshop was held at the Industry 4.0 facility of the college and was led by Mr. Balachandra N Pawar, the Founder and Director of Seshnag Technologies, a leading company specializing in design and engineering solutions. The session aimed to provide valuable

insights into the vital areas of design drawing and engineering visualization, which are essential for modern mechanical engineering and product development.

This workshop was attended by students of 4$^{th}$ semester and faculty members all of whom gained practical exposure to cutting-edge techniques and tools used in the engineering design process.

## 2. Objectives of the Workshop

The workshop had several key objectives, which were:

- To introduce participants to the fundamental concepts of design drawing and engineering visualization.
- To demonstrate the importance of accurate design drawings in the development of mechanical products.
- To showcase modern software tools used for creating detailed design drawings and 3D models.
- To discuss emerging trends in engineering visualization, including augmented reality (AR) and virtual reality (VR), and their applications in the design and manufacturing sectors.

## 3. Content Covered

The workshop was divided into theoretical discussions, practical demonstrations, and hands-on activities. Below is an overview of the key topics covered during the event:

### 3.1 Introduction to Design Drawing and Visualization

Mr. Pawar began the workshop by emphasizing the significance of design drawing and visualization in engineering. He explained how these elements help engineers communicate complex ideas clearly and accurately, ensuring that the design and manufacturing process is carried out smoothly. He introduced the participants to basic types of engineering drawings, such as orthographic views, sectional views, and isometric projections.

### 3.2 Design Drawing Fundamentals

Mr. Pawar outlined the essential principles of creating accurate and detailed design drawings. The session focused on various drawing techniques used in mechanical engineering, such as dimensioning, scaling, and projections, which are fundamental for manufacturing products with high precision. He stressed the importance of clear annotations, proper scale, and correct projection methods to avoid errors during the manufacturing process.

### 3.3 Engineering Visualization: The Role of 3D Modelling and CAD

The facilitator provided an in-depth overview of the role of 3D modelling and computer-aided design (CAD) in modern engineering visualization. He demonstrated how 3D models enhance the visualization of complex parts, making it easier to detect design flaws, test product functionality, and prepare for manufacturing. Mr. Pawar introduced the attendees to industry-standard CAD software such as Solid Works, AutoCAD, and CATIA, discussing the features and advantages of each tool.

### 3.4 Augmented Reality (AR) and Virtual Reality (VR) in Engineering Design

In this session, Mr. Pawar highlighted the growing importance of AR and VR in engineering design and product development. He discussed how these technologies enable engineers to visualize products in real-time, conduct virtual testing, and improve collaboration among team members. The potential applications of AR/VR for design validation and prototyping were explored, with examples from the industry showcasing their benefits.

### 3.5 Practical Hands-On Session

A significant portion of the workshop was dedicated to a hands-on practical session where participants worked with Solid edge. Under Mr. Pawar's guidance, attendees learned how to create a basic 3D model, apply necessary dimensions, and generate technical drawings suitable for manufacturing. The session allowed participants to gain practical experience in using professional software tools, bridging the gap between theoretical knowledge and real-world application.

### 3.6 Emerging Trends and Future of Engineering Visualization

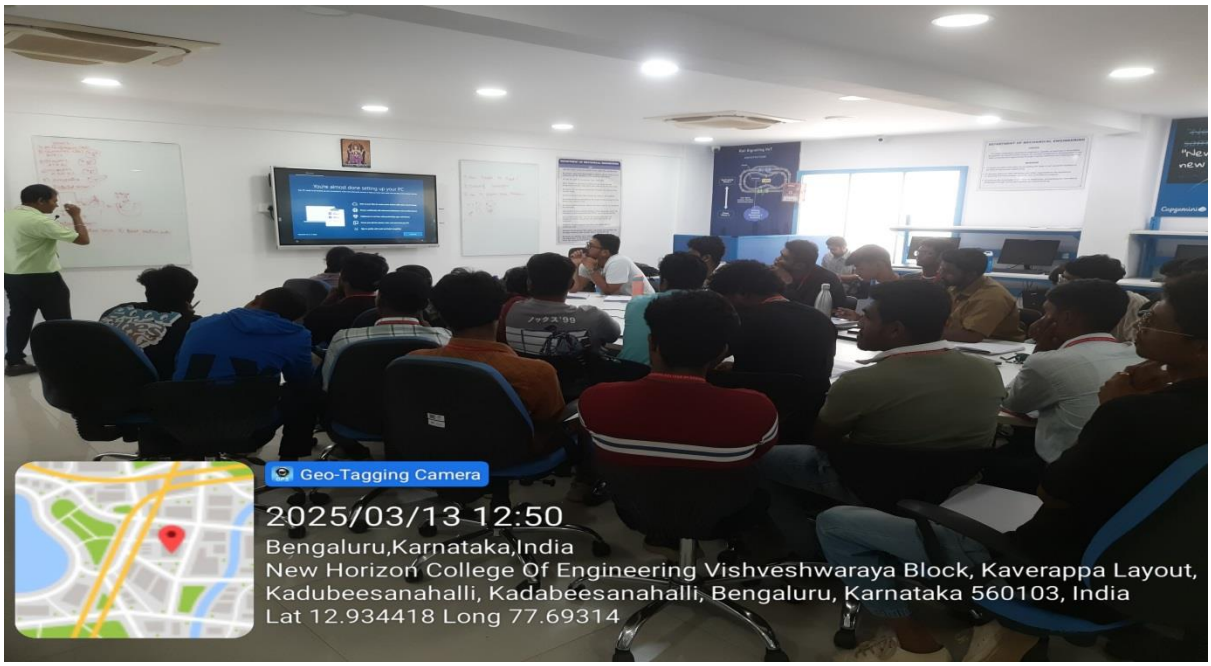
The workshop concluded with a discussion on emerging trends in design and visualization. Mr. Pawar shared his insights on how the integration of AI and machine learning is poised to further enhance the design process by automating repetitive tasks and optimizing designs. He also touched on the future role of Industry 4.0 technologies in transforming the design and manufacturing landscape.

## 4. Outcomes and Key Takeaways

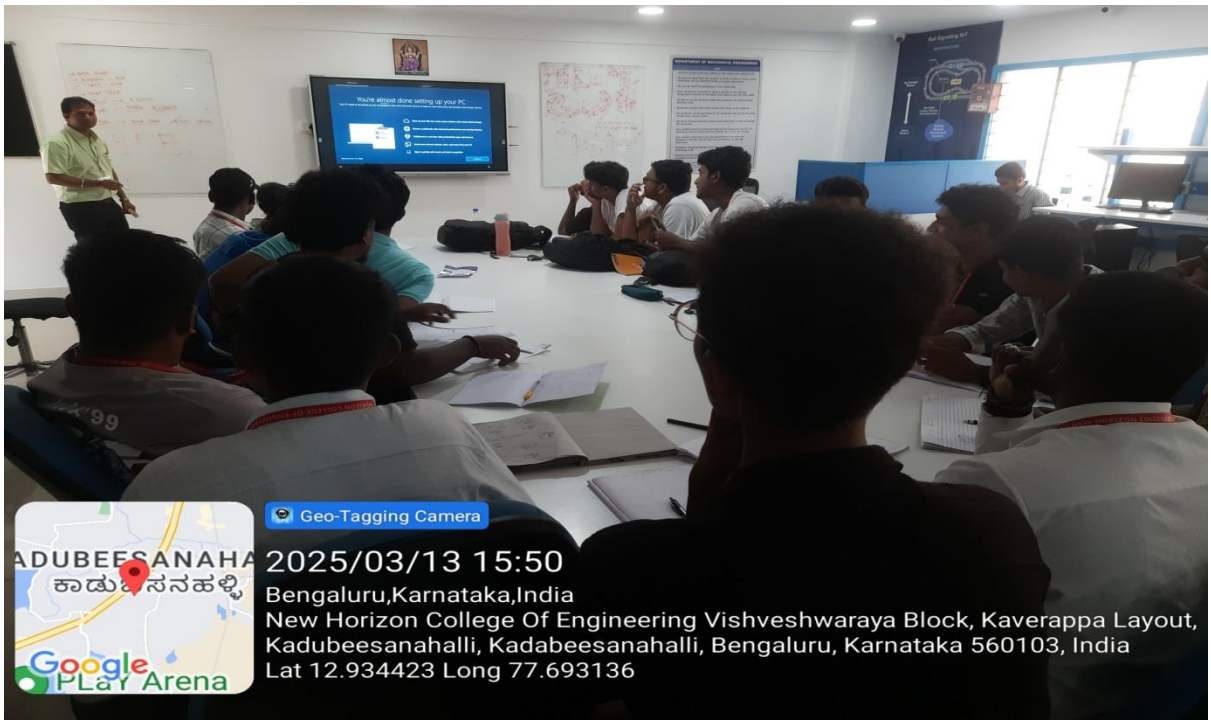
The workshop was highly informative, and the following key takeaways were highlighted by the participants:

- A deeper understanding of the critical role of design drawing and engineering visualization in mechanical product development.
- Hands-on experience with SolidWorks and other design software tools, improving skills in 3D modelling and technical drawing creation.
- A clear understanding of the importance of precise design communication and the impact of errors on the manufacturing process.

- Insights into emerging technologies like AR/VR and their transformative impact on engineering design and prototyping.
- Practical knowledge of the integration of advanced tools and technologies in modern engineering practices.




Morning session



**Afternoon session**

## 5. Feedback and Conclusion

The workshop received good feedback from participants, who appreciated the detailed demonstrations and practical exposure to industry-standard tools. Many students expressed how the session significantly enhanced their understanding of the design process and its real-world applications. The hands-on session, in particular, was well-received as it provided them with an opportunity to apply theoretical knowledge to practical tasks.

The Department of Mechanical Engineering at New Horizon College of Engineering extends its sincere gratitude to Mr. Balachandra N Pawar for his insightful session. His expertise and practical approach helped participants grasp complex concepts with ease. The department also appreciates the active participation of all attendees and looks forward to organizing similar events in the future to further enrich students' learning experiences.

## 6. Acknowledgments

We would like to thank Mr. Balachandra N Pawar for his time and effort in conducting this valuable workshop. Special thanks to Seshnag Technologies for their support in making this event possible. We also extend our gratitude to the organizing team, faculty, and students who contributed to the success of the workshop.

**Report Prepared by:**

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