NEW HORIZON
COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
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DEPARTMENT OF MECHANICAL ENGINEERING

Alumni Talk Report

Title: The Twin Connection: Alumni Insights on Digital Transformation

Date: 28-11-2025
Time: 10:00AM-12:00PM

Alumni Speaker:	**Mr. Mukesh Choyal** **Founder, Colab Learn** **Batch: 2013 – 2017**
Attendees:	**V Semester students**

Overview:

The alumni talk on "The Twin Connection: Alumni Insights on Digital Transformation" provided students with a deep and technical understanding of how modern engineering industries are leveraging simulation technologies and digital twins. The speaker explained the transition from traditional mechanical modelling to physics-based computational systems, highlighting how Lagrangian and Newtonian mechanics form the backbone of real-world simulations.

Key Topics Covered

The session explored the vital connection between fundamental mechanics and modern simulation engineering. The speaker began with a refresher on the basics of engineering and its significance, before illustrating how Newtonian physics underpins engineering simulations—enabling precise predictions of motion, forces, and system behavior through numerical solvers.

He then introduced Lagrangian mechanics, emphasizing its strengths in modeling multi-body and constrained systems, particularly in fields such as robotics and civil engineering. The concept of **digital twins** was presented as real-time virtual counterparts of physical systems, with a workflow encompassing data acquisition, simulation, feedback, and predictive analysis.

Mukesh further explained how simulation pipelines integrate physics models, material properties, and numerical methods, linking them to core subjects like mathematics, dynamics, vibrations, and control systems. He highlighted diverse industry applications across construction, manufacturing, robotics, automotive engineering, IoT, and smart factories—showing how simulations drive cost efficiency and performance improvements.

The talk concluded with a case study demonstrating the role of digital twins in accurate system development, underscoring the rising importance of simulation-driven engineering in the era of Industry 4.0. Finally, he shared insights into **Colab Learn's offerings**, including specialized training in Linear Algebra, Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), and simulation techniques, designed to strengthen students' industry readiness.

Student Engagement

Students actively participated by asking questions and gained insights related to careers, skill development, and opportunities in digital twin development. The interactive examples helped students understand how their core mechanical engineering subjects directly translate to cutting-edge digital technologies in Industry 4.0 era. The talk enhanced curiosity toward computational engineering, simulation tools, and digital transformation pathways.

Fig: Glimpse of the Lecture

Feedback

The feedback on the alumni talk was overwhelmingly positive. Students appreciated the way Mr. Mukesh connected complex physics principles with real-world industry applications. They found the session insightful and relevant to the current technological landscape, especially in the context of Industry 4.0.

Conclusion

The alumni talk successfully highlighted how foundational mechanical engineering concepts like Newtonian and Lagrangian mechanics play a crucial role in modern digital systems. Students gained clarity on digital twins, simulation methodologies, and the skills required to thrive in the digital transformation era. The session encouraged learners to approach core subjects with renewed interest and to explore simulation-driven career paths.