MATLAB Workshop Report

Report on Three-Day Hands-On Workshop on MATLAB and Simulink

The Department of Artificial Intelligence and Robotics (AIR) at Dayananda Sagar University (DSU) organized a three-day hands-on workshop from 08 November 2024 on MATLAB and Simulink for its students. The workshop, conducted by Dr. Pramod Kumar Naik, Head of the AIR Department, focused on equipping students with practical knowledge and technical expertise in MATLAB and Simulink, two widely used tools for engineering simulations, modeling, and analysis. The workshop provided students with valuable skills and practical insights into MATLAB, and Simulink, and their applications

in audio processing, spectrum analysis, and machine learning. Dr. Pramod Kumar Naik's expertise and interactive teaching methods were instrumental in the success of the workshop. The event reflects the AIR Department's commitment to empowering students with cutting-edge tools and knowledge, preparing them to excel in their academic and professional endeavors.

Event Overview

The workshop spanned three days, offering an immersive learning experience for the participants. The sessions were meticulously designed to provide a balance of theoretical knowledge and practical application. The primary objective was to enable students to harness the capabilities of MATLAB and Simulink for solving real-world engineering problems.

Day 1 covered the fundamentals of MATLAB, including its interface, basic operations, and data visualization techniques. Students were introduced to MATLAB programming and were given exercises to build confidence in scripting and debugging. Dr. Pramod emphasized the importance of MATLAB in various engineering domains and shared insights into its role in modern-day problem-solving.

Day 2 focused on Simulink, where participants explored the platform's simulation and modeling capabilities. They learned to create dynamic system models and analyze system behaviors. The hands-on exercises included building block diagrams, running simulations, and interpreting results. Dr. Pramod also highlighted the integration of MATLAB and Simulink for advanced applications.

Day 3 was dedicated to advanced topics and applications. Students worked on real-world case studies, applying the skills acquired during the first two days. The session included projects on control systems, signal processing, and data analysis. Dr. Pramod guided students through these projects, sharing valuable tips and best practices to enhance their efficiency and problem-solving abilities.

Key Outcomes

- Students gained a strong foundational understanding of MATLAB and Simulink.
- Participants developed practical skills in simulation, modeling, and data analysis.
- The workshop provided exposure to real-world engineering applications, bridging

the gap between theory and practice.

Feedback and Impact

The workshop was well-received by the students, who appreciated the structured approach and hands-on experience. Many participants highlighted the clarity of Dr. Pramod's teaching and the relevance of the topics covered. The interactive nature of the sessions ensured active engagement and fostered a deeper understanding of the tools.

Conclusion

The three-day workshop on MATLAB and Simulink was a resounding success, empowering students with essential skills and knowledge to excel in their academic and professional pursuits. Dr. Pramod Kumar Naik’s expertise and guidance were instrumental in achieving the workshop's objectives. This initiative reflects the AIR Department's commitment to providing high-quality, practical education to its students, equipping them to meet the challenges of a rapidly evolving technological landscape.

Figure 1. Dr. Pramod Kumar Naik presented a Hands-on session on MATLAB

Figure 2. Dr. Pramod Kumar Naik's discussion with students during the workshop

Figure 3. Dr. Pramod Kumar Naik's discussion with students during the workshop

Figure 4. Students attending workshop