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TRAIN THE TRAINER –CNC PROGRAM

Introduction

The Department of Mechanical Engineering organized a specialized "CNC Train the Trainer" program for the 6th-semester students on 24th May2024. The primary objective of this program was to equip a select group of students with the necessary knowledge and skills to become trainers in CNC technology. These student trainers would then be responsible for imparting CNC knowledge to their peers, fostering a deeper understanding of this crucial manufacturing technology.

The program aimed to equip students with advanced knowledge and practical skills in Computer Numerical Control (CNC) machining and programming, fostering both technical expertise and instructional capabilities. The training was given by in house faculty Prof. Hemanth Suvarna, subject expert.

Objective

The primary objective of the program was to prepare students for leadership roles in CNC operations by:

- Enhancing their understanding of CNC systems and machining processes.
- Developing their ability to train others in CNC programming and operations.
- Bridging the gap between academic knowledge and industry practices.
- The program was structured into two key phases:

Phase 1: Technical Training

- CNC Fundamentals: Introduction to CNC technology, its components, and applications.
- CNC Programming:Hands-on training on CNC programming languages (e.g., G-code, M-code).
- Machine Operation: Practical sessions on operating CNC machines (lathe and milling).
- Tool Path Generation: Using CAD/CAM software to generate tool paths for CNC machining.

Phase 2: Training Methodology and Pedagogy

- Effective Training Techniques: Interactive teaching methods, group discussions, and hands-on exercises.

- Communication Skills: Developing clear and concise communication skills to effectively convey technical information.
- Presentation Skills: Preparing and delivering engaging presentations on CNC topics.
- Feedback and Evaluation: Techniques for assessing learner understanding and providing constructive feedback.

4. Program Highlights

- Expert Faculty: The program was conducted by experienced faculty members with extensive knowledge in CNC technology.
- Hands-on Training: Practical sessions on CNC machines allowed students to gain hands-on experience.
- Industry-Relevant Content: The curriculum was designed to align with industry standards and practices.
- Peer-to-Peer Learning: The train-the-trainer approach encouraged collaborative learning and knowledge sharing.

Activities Conducted

- **Hands-on Training:** Students operated CNC machines under expert guidance.
- **Group Activities:** Teams were assigned projects to create and simulate CNC programs.
- **Q&A Sessions:** Resource persons addressed queries and shared industry insights.

Outcomes

- Students gained a deeper understanding of CNC operations and programming.
- Improved their ability to handle CNC equipment independently.
- Enhanced confidence and skills to train others in CNC machining.
- Bridged the gap between theoretical concepts and practical applications.

Feedback and Conclusion

The program received positive feedback from participants, who appreciated the practical approach and expert guidance provided. Many students expressed increased confidence in their technical and instructional skills.

The department plans to conduct more such programs in the future to further prepare students for industry challenges and leadership roles.

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ONE-DAY WORKSHOP ON FLEXIBLE MANUFACTURING SYSTEMS

Introduction:

The Mechanical Department of Alva's Institute of Engineering and Technology organized a comprehensive one-day workshop titled "Introduction to Flexible Manufacturing Systems" on 24-02-2024. The workshop aimed to provide participants with a solid foundation in Flexible Manufacturing Systems (FMS), enabling them to gain insights into modern manufacturing techniques and become industry-ready. The event commenced at 9:30 AM with an inaugural ceremony, graced by the presence of esteemed faculty members and students. The Head of the Mechanical Department delivered a warm welcome address, highlighting the significance of FMS in today's manufacturing landscape and its potential to revolutionize the industry.

Session 1: Understanding Flexible Manufacturing Systems

The first technical session began at 9:30 AM, where the renowned industry expert, Mr. Pramod Kumar N, shed light on the concepts and principles of Flexible Manufacturing Systems.

Participants were introduced to the evolution of manufacturing systems and the need for flexibility in modern industrial settings. Mr. Pramod VB emphasized how FMS can streamline production, reduce costs, and enhance adaptability.

Session 2: Components of Flexible Manufacturing Systems

Following the insightful introduction to FMS, Mr. Pramod VB, with his extensive expertise, delved into the key components of Flexible Manufacturing Systems. He explained the critical elements, including computer control, automated material handling, and various processing stations. Real-world examples and case studies were used to illustrate the practical application of FMS.

Interactive Q&A Session:

After each technical session, interactive question and answer sessions were held, allowing participants to seek clarifications and engage in meaningful discussions. This segment fostered an atmosphere of active learning and encouraged participants to clarify doubts and deepen their understanding of FMS concepts.

Session 3: Programming and Operation of FMS

Post a brief refreshment break. the afternoon session commenced with Mr. Hemanth Suvarna leading an in-depth discussion on the programming and operation of Flexible Manufacturing Systems. Participants were introduced to the software and control systems used to manage FMS, as well as the operational procedures involved. Practical demonstrations and simulations were employed to enhance understanding.

Session 4: Hands-on Experience with FMS

The highlight of the workshop was the hands-on training session, where participants had the unique opportunity to interact with a Flexible Manufacturing System. Under the guidance of Mr. Pramod V B, they learned how to set up workpieces, program the system, and execute tasks within an FMS environment. This hands-on experience provided invaluable insights into the practical aspects of FMS.

Conclusion:

The "Introduction to Flexible Manufacturing Systems" workshop at Alva's Institute of Engineering and Technology was a resounding success, achieving its objectives of providing participants with theoretical knowledge, practical experience, and industry insights in FMS. The event not only contributed to the personal and professional growth of the participants but also strengthened the institute's reputation for academic excellence and industry-oriented learning. The workshop's impact is expected to resonate positively with the participants' future careers in the dynamic world of manufacturing and technology.

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