International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Redesigning Vocational Education in West Bengal: Sri Snehanshu Manna and the "Design-to-Production" Model

Snehanshu Manna

Vocational Education, Industry 4.0, Socio-Economic Development

Government ITI Durgapur, Technical Education Training and Skill Development, Government of West Bengal, India

Abstract: ***In the era of Industry 4.0, the success of a nation's manufacturing sector now hinges on the integration of digital design with physical execution. At Government ITI Durgapur, Sri Snehanshu Manna has pioneered a "Design-to-Production" methodology that transcends traditional vocational instruction. By integrating 3D CAD modeling with CNC machining, Manna has redefined the trainee's role, elevating them from machine operator to technical architect. This article examines the "Manna Model" and its profound implications for regional industrial growth and social mobility.***

Keywords: vocational education, Industry 4.0 training, Design-to-Production model, skill development, Make in India

1. Introduction

As India maneuvers to become a global manufacturing hub under the "Make in India" initiative, the quality of technical training at the grassroots level has become a critical focal point. While infrastructure is essential, the human element- mentorship and curriculum innovation- has redefined the trainee's role, elevating them from machine operator to technical architect. Sri Snehanshu Manna, an Instructor in the Turner trade under the Directorate of Industrial Training (DIT), West Bengal, has emerged as a pivotal figure in this transformation. With a career spanning 16 years, Manna's work serves as a blueprint for the future of technical education in South Asia.

The 'Manna Model': Bridging Digital Design and Industrial Execution:

The traditional paradigm of vocational training often focused on rote mechanical skills, leading to a disconnection between design teams and workshop execution. Sri Manna has dismantled this siloed approach through an integrated workflow that emphasizes three core competencies:

1) **Digital Architecture:** Trainees are taught to translate abstract concepts into precise 3D CAD (Computer-Aided Design) models.
2) **Resource Optimization**: By utilizing digital simulations, students learn to calculate exact material requirements, significantly reducing industrial waste and overhead costs.
3) **Autonomous Production:** Trainees gain advanced proficiency in CNC (Computer Numerical Control) machining, enabling them to independently produce components that meet international precision standards.

This holistic approach ensures that students, particularly those from rural backgrounds, graduate with technical competencies equivalent to those found in elite urban polytechnics.

Socio-Economic Impact and Female Empowerment:

Beyond technical proficiency, the "Manna Model" serves as a tool for structured social development. Operating within the mandates of Utkarsha Bangla and the Skill India Mission, Manna has focused his efforts on the socio-economic upliftment of West Bengal's rural youth.

A cornerstone of his legacy is the active promotion of female participation in technical trades. In a regional context where socio-cultural pressures often lead to early marriage, Manna has successfully advocated for vocational training as a path to financial autonomy. By equipping young women with high-demand industrial skills, he has facilitated a shift where professional career goals take precedence, thereby fostering regional social stability and gender equity in the workforce.

Alignment with National Industrial Goals:

The methodology practiced at Govt. ITI Durgapur aligns seamlessly with the national objective of self-reliance (Atmanirbhar Bharat). By fostering a culture of "creators" rather than just "operators," Manna is building the human capital necessary to sustain high-tech manufacturing ecosystems. His focus on reducing material waste and improving precision directly contributes to the global competitiveness of Indian-made goods.

2. Conclusion

Sri Snehanshu Manna represents the "unsung heroes" of India's educational landscape. His 16-year tenure is not merely a record of service but a narrative of revolutionary impact. As West Bengal positions itself as a resurgent center for industrial excellence, the "Manna Model" offers a scalable, effective strategy for developing the next generation of industrial architects.

Key Contributions of Sri Snehanshu Manna (2009–2025):

- **Innovation**: Pioneer of the "Design-to-Production" methodology in the Turner trade.

- **Sustainability**: Drastic reduction in training-related material waste through digital pre-modelling.
- **Inclusion**: Significant increase in female enrolment and placement in CNC-related roles in the Durgapur industrial belt.
- **Vision:** Aligning grassroots vocational training with the high-tech requirements of Industry 4.0.