



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Thesis Title: **Development of Affordable Tools for Brass Metal Handicraft Products in Assam**

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SHORT ABSTRACT

This study investigates design interventions in India's brass metal handicraft sector, focusing on enhancing productivity and quality through the development of manufacturing tools. The study addresses the challenges faced by artisans in adopting advanced tools and technologies while preserving traditional craftsmanship. Through a systematic literature review, field surveys, and analysis of existing manufacturing processes, the research identifies opportunities for innovation and design intervention. Our focus for tool development is on improving efficiency and quality in three bottleneck processes: hemming, shaping, and surface bending.

The study introduces newly designed tools tailored to the specific needs of brass, sheet metal, and handicrafts. These tools demonstrate significant improvements in process time and quality, validated through prototypes and testing with technical experts and craftsmen. Additionally, the research emphasizes the importance of adaptability, cost-effectiveness, and user-friendliness in tool design to ensure successful implementation and acceptance by artisans.

Despite the positive outcomes, the research identifies several limitations and challenges, including resistance to change, initial investment costs, and infrastructure limitations. Proposing future research directions to address these challenges will further advance sustainability and innovation in the brass metal handicraft sector. These include exploring digital craftsmanship, promoting circular economy principles, and fostering cross-disciplinary collaboration.

Overall, this research contributes to enhancing the competitiveness, sustainability, and cultural authenticity of India's brass metal handicrafts through strategic design interventions and technological advancements.