



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS

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The increasing environmental load resulting from mass production and planned obsolescence have heightened the demand for sustainable product design. Durability is an important aspect of product design that influences product quality. Traditionally, concepts of durability have centred on physical longevity and the life-cycle of a single product. This thesis introduces a new concept called design durability, offering a comprehensive approach to ensuring that specific design attributes remain relevant across a wide range of products and life cycles.

Design durability emphasises the lasting characteristics of design elements, including form, function, and usability, enabling products to adjust to changing market dynamics, consumer expectations, and technological progress. In contrast to traditional durability, which prolongs a product's physical lifespan, design durability focusses on the resilience of design elements that can be adapted, altered, and reinterpreted across various product categories and generations. This approach supports a circular economy by reducing waste and encouraging adaptable, modular design solutions.

Through a mixed-methods approach that identifies factors from literature review, expert focus groups, and product reviewing, this research identifies 22 critical factors contributing to design durability, such as aesthetic continuity, adaptability, and standardisation. An exploratory factor analysis further refines these factors, revealing seven strategic approaches, such as modularity, user experience, and operational integrity, that designers can apply across various product types, including convenience, shopping, specialty, and unsought goods.

The thesis offers a new concept and practically usable strategies that assist designers in evaluating and enhancing the continuity of the feature, thereby promoting the development of durable, adaptable products that minimise waste and prolong product value. This research emphasises resilient design features over product-centred longevity, establishing design durability as a crucial element of sustainable design and advocating for a paradigm shift towards adaptable, enduring design in light of global sustainability challenges.