



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS**

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Over the past century, lighting technology has evolved from incandescent lamp to today's LED technology. Following the advancement there is an increased emphasis on perception based lighting design in exhibition spaces. It has been identified that most of the studies on lighting in art galleries have given importance to the technical and economic aspects of lighting. However, the viewers' perception and preference on lighting conditions has gained relatively less attention in this context of regard. The current lighting design practice in art galleries is based on some canonical rules that scarcely represent perception of viewers for viewing artworks. A key dilemma for research in this area is that different professionals are associated in this field that lead to contradiction in views of lighting design process. In order to fulfil this gap, this thesis aims to develop a lighting design approach that will best possibly serve the expectations of different exhibition stakeholders while satisfying the visual preferences of viewers for effective spotlight design in art exhibition.

The thesis has initiated by thorough literature review that helps to identify the existing research gap and to construct hypotheses. After identifying the research gap, the study has progressed through two main phases. In first phase, a field study was carried on to understand the lighting scenario for painting exhibition in Indian art galleries. In second phase a set of laboratory-based experiments were conducted to verify the hypotheses. Qualitative as well as quantitative approaches were taken to carry out these experiments. Successively, an experimental study was carried on to understand the visual preferences for effective spotlight design in painting exhibition. Based on the results of this experiment, a lighting design approach has been developed for effective spotlighting in painting exhibition from viewers' perspective.

The study provides an insight for selecting spotlight for painting exhibition based on visual preference. Moreover, it tries to bridge the gap among the different stakeholders associated with exhibition design. The exhibition stakeholders can develop lighting design based on the findings of this study related to the effect of lighting parameters on visual perception. The novelty of the present study lies in the elicitation of a design approach that incorporates light as a design element in the early stage of exhibition design process. The purpose of this study is not to restrict but to emancipate lighting design for art galleries from specific guidelines and to optimize lighting conditions in painting exhibition from viewers' perspective.