**SEMINAR REPORT TITLE**

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**(**An autonomous college under UGC Act, 1956)

#### ABSTRACT

Durability of concrete is affected by number of factors. While considering reinforced concrete structures, corrosion of reinforcement is one of the major factors which controls the service life of the structure. Corrosion tends to reduce the cross-sectional area of embedded rebars, form cracks and weaken the bond between rebar and concrete. The present status of a structural members is an important parameter. To assess the condition of RC beams, the condition of rebars needs to be checked. The previous researches were referred to study the flexural behaviour of corroded RC beams along with the usage of NDT techniques to predict the residual strength of RC beams. The yield stress of rebar and the flexural strength of beam reduces with increase in metal loss. The flexural models in previous studies were applicable in certain conditions and much complex. A simple and valid model was required to estimate the condition of beams. Few conducted researches used NDT methods for this purpose. Therefore, the present study was conducted. The experimental program included casting of RC beams and creating an artificial accelerated corrosion setup, to analyse the behaviour of RC beams with different exposure and conditions of corrosion. The effect of different corrosion levels of yield stress and capacity of beam were computed along with relations between the factors. Half-cell potential test was conducted to check the conditions of rebars during the corrosion process. A model has been developed to predict the residual strength of corroded RC beams. In addition, a relation between HCP values and maximum crack width had been proposed to check the condition of corroded rebars. The data collected from published literatures was used to validate the correlations and the model.

#### ACKNOWLEDGEMENT

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# INTRODUCTION

# LITERATURE REVIEW

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(Han et al., 2023)(Said et al., 2018)(Verma et al., 2014)(Abbas et al., 2019)(Feng, Tarakbay, et al., 2021)

# RESULTS AND DISCUSSION

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