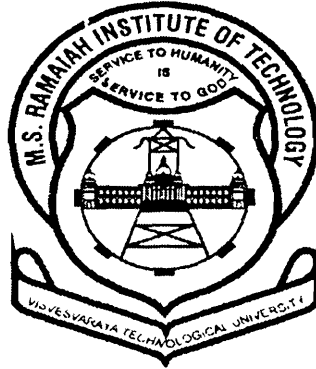


VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

ELECTRIC FIELD ANALYSIS OF HIGH VOLTAGE

PORCELAIN INSULATORS



**A Project report submitted in partial fulfillment of
Bachelor of Engineering course in
ELECTRICAL AND ELECTRONICS ENGINEERING**

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ABSTRACT

Electric field calculations are not common practice in the design and development of ceramic insulators for high voltage transmission applications. This project applies electric field analysis to calculate the field distribution of three types of insulators (420kN, 210kN, 160kN) subjected to both test and service voltages.

The high voltage fields can cause damage to insulator sheath due to corona discharge in transmission lines. With the help of package called ANSYS multipurpose finite element method package, computer simulation can be done for the phenomena occurring both inside and outside of it. This becomes a vital source on the insulator behavior at established operational conditions.

In addition to the above insulators are subjected to routine tests to verify the soundness of the material composition and design before product dispatch. Using the same package ANSYS, simulation can be done to test the porcelain for electrical soundness (i.e., whether it can withstand the standard test voltages without electrically breaking down).

The computer simulation results can verify the data obtained during actual insulator operation on laboratory tests, which makes it possible to do suitable adjustments at the design stage in order to include some innovative solutions, operational features, improvements as well as to get some economical advantages resulting from them.