

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM**



A project Dissertation submitted on

**“STAGE –DISCHARGE PREDICTION IN OPEN
CHANNEL”**

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ABSTRACT

This study presents an investigation on the establishment of stage- discharge relationship under varying discharge and channel slope conditions using rectangular bridge pier models. The channel is obtained by inserting two rectangular piers. The dimensional analysis developed by Baiomonte and Ferro (2007) to obtain self- similarity theory is used in the study. For determining the two coefficients of the power stage-discharge equation, experimental runs are carried out using channel characterized by different values of the contraction ratio ranging from 0.26 to 0.66 and of the channel slope ranging from 0% to +4% and -4%. Finally, for a given range of the contraction ratio, the relationships for estimating the two coefficients of the stage-discharge equation are obtained. Also the calibration curves are developed for different channel slopes and the functional relationship for 'a' and 'n' in terms of slopes are obtained. The discharge computed using rating equation match very well with experimental results with correlation coefficient in the range of 0.982273 to 0.999655.