**MODELING OF ONE DIMENSIONAL FLOW OVER SEMICIRCLE CRESTED WEIR PROFILE USING (HEC-RAS) PROGRAM**

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**ABSTRACT: -** A semicircle crest profile extending across full width of laboratory channel (suppressed) provides measurements of discharge – head under free flow condition. According to these measurements an empirical head – discharge relationship has been established. Dimensional analysis is carried out to establish independent parameter (R/H) which represents relative crest curvature and dependent parameter (𝑞𝑔12⁄𝐻32⁄ ) . Regression analysis and solver function in Microsoft excel is used to determine the flow equation, to obtain a relationship between depending discharge and the independent parameters affecting the flow. Non-linear equation for estimating the discharge coefficient of the weir model was developed. The accuracy of HEC-RAS software is examined for describing water surface profiles, computation of rating curve and the occurrence of the critical depth .The HEC-RAS program results are compared with the laboratory measurements. Yield affair agreement between them. The weir coefficient of semicircle crest profile is greater than that for the basic broad crested weir and the flow upstream of the weir is subcritical .Transitional flow occurs on the weir crest and the flow along downstream weir face is supercritical within the range of modular discharges.

***Keywords:*** HEC-RAS, semicircle crest, dimensional analysis, rating curve, discharge coefficient, flow equation.