1. **Optimum Hydraulic and Structural Design of Inverted Siphon**.

**Abstract**

In the present study, the optimum hydraulic and structural design of inverted siphon has been studied. Modified Hooke and Jeeves method considered in the present study and some modifications were doing. These modifications are:1) modification on the assumed initial base points, 2) modification on the value of step length, 3) modification on the value of the reduced step length at each trial. Many shapes of inverted siphon considered as (circular section, square section, and rectangular section). A computer program was writing by FORTRAN90 language depending on the method mentioned. STAAD Pro2006 software program was considering to structural analysis and design of inverted siphon. Many examples solved to check the accuracy of the written program.