

# Implementation of a two-tank multivariable process for control education

## Abstract

In many industrial processes there are multivariable systems which have more than one controlled variable and more than one manipulated variable. For the proper control of this type of process, the influence of one control loop on another must be taken into account, and the objective is to reduce or eliminate the effect of this interaction and control the ties independently. Despite the importance of this type of process, its teaching is not standard in automatic undergraduate control courses. In this paper, We describe a two-tank multivariable process implemented in a control laboratory and the procedure performed to compute the control law, analyzing the interaction of the loops using the RGA relative gain matrix, designing the loop decouplers and tuning the PID by the IMC method.