

Modeling and Simulation of a Modified Quadruple Tank System - DTU Orbit (08/11/2017)

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Quadruple tank process is a non-linear system, have multiple manipulated and controlled variables and have significant cross binding parameters. Furthermore, the modified system is affected by some unknown measurement noise and stochastic disturbance variables which make it more complicated to model and control. In this paper, a modified quadruple-tank system has been described, all the important variables has been outlined and a mathematical model has been presented. We developed deterministic and stochastic models using differential equations and simulate the models using Matlab. Subsequently, steady state analysis is included to determine the operating window for the set points. The purpose to have an operating window for the system is to distinguish the range of feasible region to select the set points for optimum operations. Therefore, in this paper a virtual process plant is created, we investigate the operating window and construct the model in an appropriate form for future controller design.

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