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An Experimental Study on Implementation of Centralized PI Control Techniques on Pilot Plant Binary Distillation Column

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Abstract : The article discusses centralized PI control techniques and its implementation on a pilot plant binary distillation column. More specifically, the paper presents two centralized control methods. The first method is designed based on the Steady State Gain Matrix (SSGM), whereas the second method is designed based on the SSGM along with time delay and time constant of the process transfer function matrix. The interaction and main effects are obtained and analyzed between the process variables along with its performance. Further, the selection of process variables during the closed loop implementation of the control algorithm are studied. Moreover, the effectiveness of the centralized control techniques are discussed both, in simulation and real- time environment. Finally, the control algorithm is implemented in real-time using the MATLAB Simulink platform.
Keywords: Centralized Controller, Pilot Plant, Steady State Gain Matrix, Process Parameter.

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