

TITLE: COMPARISON OF DIFFERENT PID TUNING METHOD FOR TEMPERATURE PROCESS CONTROL

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2024

AUTHOR'S DECLARATION

" I hereby declare that this report is the resof my own work except for quotations and summaries which have been duly acknowledged."

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ABSTRACT

Heat exchanger process control training system is an equipment that are used to do the experiment. The PID controller is a loop control type that are found on most process controllers to improve the accuracy of the process. The objective of this experiment is comparing the various tuning rules with Integral Absolute Error (IAE), settling time, and MV change of 20%. Tuning is the process to determine the best gains for Proportional Band (PB), Integral (I), and Derivative (D) to obtain the best response from control system. This will find best tuning method with having a good performance of temperature process control system. This to make sure the best method chosen are stability, robustness, minimum settling time and Integral Absolute Error (IAE) based on PID tuning controller. Then, the method chosen to discuss in this project are Ziegler-Nichols, Cohen Coon, and Takahashi methods. Ziegler-Nichols is known as the well tuning methods in the process control industries. Then, Cohen Coon method is correcting the slow and had a steady state response of the controller. Third, The Takahashi method can guarantee a steady and reliable response for this temperature control system. Through this project, the result obtained that Ziegler-Nichols method is the best performance than Cohen Coon and Takahashi methods. Thus, this PID controller temperature process control is an advanced performance that can be used for identifying the best tuning method for control system engineering.

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