

Wasin Leenarithikul 2008: Controller and HMI Design for Continuous Stirred-Tank Reactor (CSTR) in Biodiesel Production Process. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering, Thesis Advisor: Assistant Professor Peerayot Samposh, D.Sc. 123 pages.

This thesis proposes a controller design method and HMI design for the continuous stirred-tank reactor (CSTR) in the biodiesel process. The design starts from looking for the dynamics model of the reactor in the biodiesel continuous process. The concentration of biodiesel is controlled to the desired level by PI controller, State Feedback I controller and Feedback Linearization. State Estimator also is used for estimating concentration of biodiesel by temperature in the reactor. Results of each method control is analyzed. In addition, the implementation on PLC using PI algorithm is tested, and HMI is written for the continuous stirred-tank reactor (CSTR) in the biodiesel process.

_____/_____/_____
Student's signature Thesis Advisor's signature

