

Department of Instrumentation and Control

Innovative Teaching Method

Class:	B. E. Instrumentation & Control
Name of Method:	Simulation of Advanced Controller for MIMO process.
Subject:	Process Dynamics & Control
Name of Staff	Dr. B.J.Parvat
Date and Time:	08/12/2020
No of students:	14
Learning Objective:	
1. To design and implementation of advanced controller for multivariable	
Outcomes: On completion students were able to __	
1. Able to design and implement model based PID controller for two input two output multivariable process.	
Description:	
Simulation example is given to show the effectiveness of the designed controller in handling processes. In this example, decentralized PID controller is designed and simulated for two-input two-output Wood-Berry distillation process.	
Impact of Innovative Method:	
Students are understand complete procedure for design and implementation of decentralized controller for two input two output multivariable processes.	
Pos and PSOs:	
PO2, PO3, PO4, PO5 and PSO2	

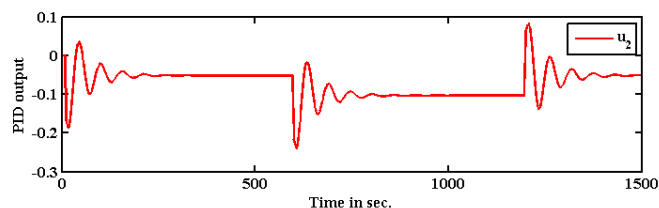
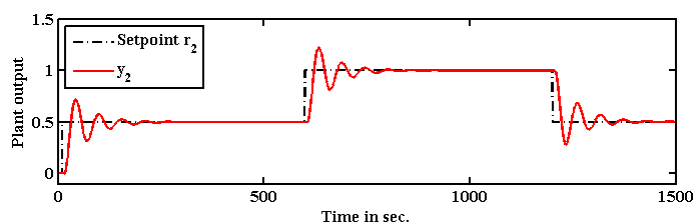
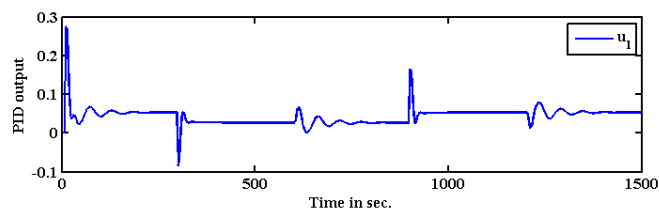
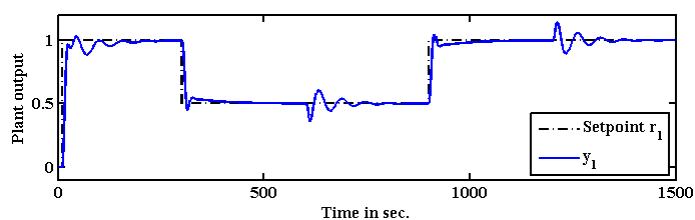
Rubrics used:

Skills/Criterion/ Category	3 Points	3 Points	2 Points	2 Points
Objective of the simulation	Objectives and analysis of given example	Understanding concept of model based controller	Understanding of design procedure of controller	Understanding of implementation of designed controller in Matlab
Response from students	Students were interact	Students were explained difference between conventional PID and Model based PID controller.	Students are designed model based controller on paper.	Students were get clear idea of implementation through screen sharing.

Assessment based on Rubrics

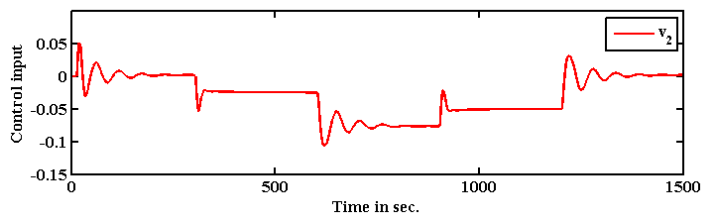
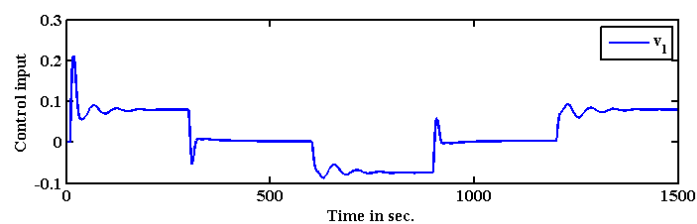
Sr. No.	Name of student	R1 (marks)	R2 (marks)	Total (marks)
1	Mr. Bhushan Karanjkar	9	8	17
2	Mr. Suyash Gadhave	9	9	18
3	Mr. Rushikesh Bhagwat	9	9	18
4	Mr. Nishant Joshi	7	8	15
5	Mr. Urmila Thapa	7	7	14
6	Mr. Yash Shelke	9	9	18
7	Mr. Rutuja Jadhav	6	5	11
8	Mr. Pratiksha Aher	8	8	16
9	Mr. Mayuri Narkhede	6	6	12
10	Ms. Damini Jadhav	9	9	18
11	Mr. Pranav Ahire	9	9	18
12	Mr. Vishal Patra	9	9	18
13	Mr. Shirish More	8	8	16
14	Mr. Satyam Bhandare	4	4	08

Simulation Result:



Closed-loop Response for Two-Output for Set-Point Change.

Output of Controllers.



Control Inputs to Plant after Decoupler.

Dr. B. J. Parvat

Subject In-charge