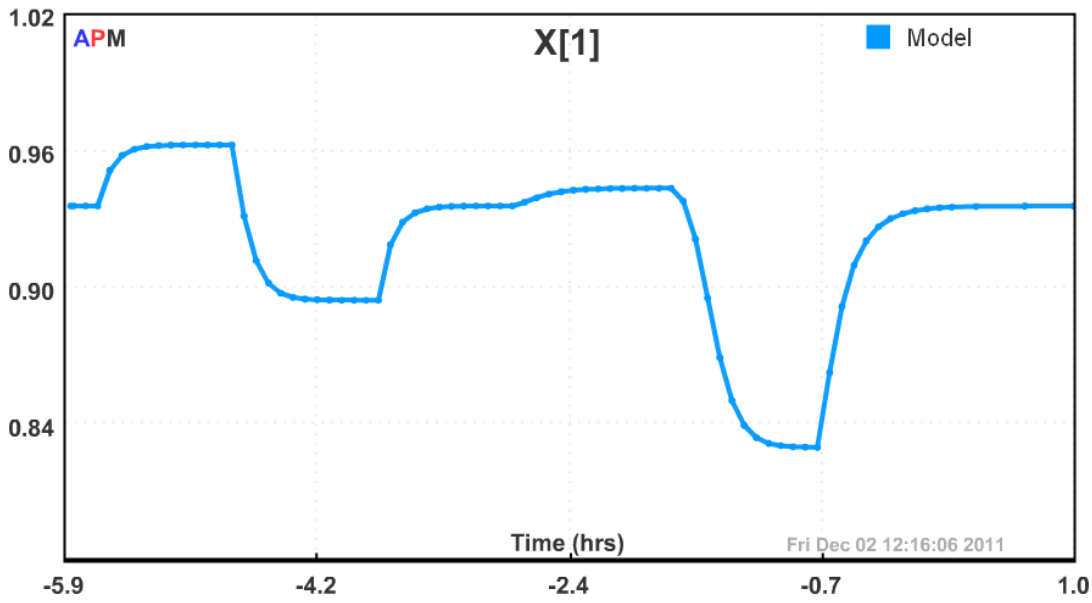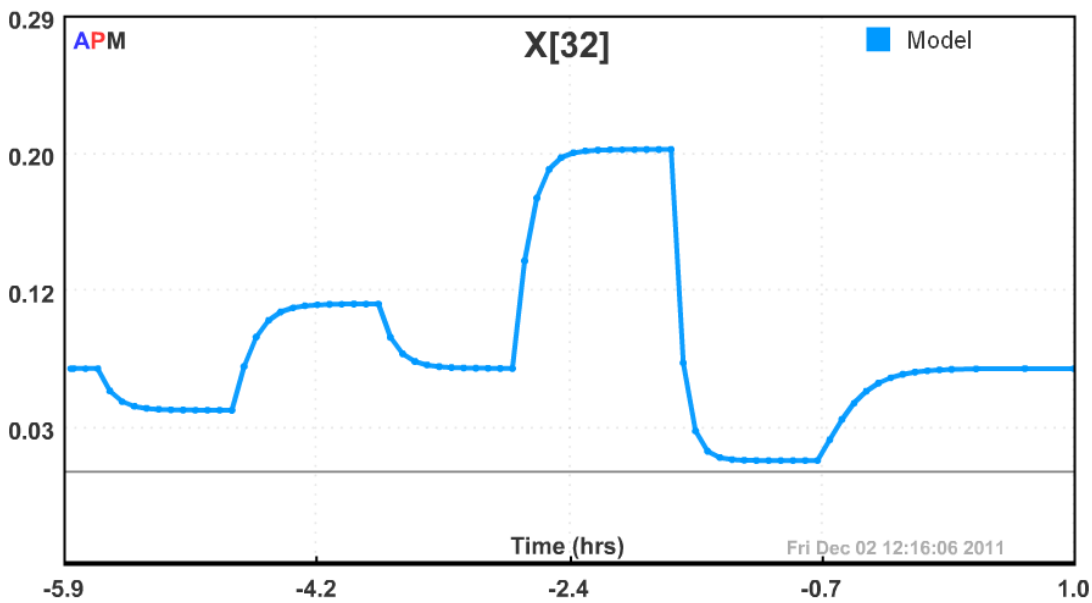Process Control 436 - Example 1: Calculate transfer functions for distillation column model response.
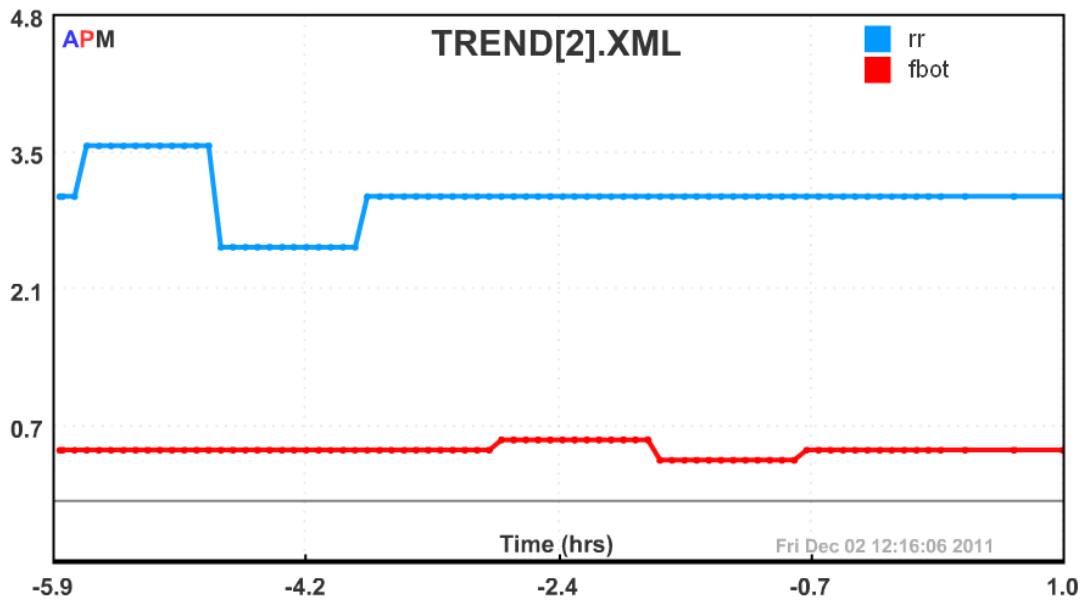
X[1] = Top, X[32] = Bottom, RR = Reflux Ratio (3-3.5-2.5-3), Fbot = Fraction of Feed Leaving Bottoms (0.5-0.6-0.4-0.5)

$K_{p,11}=$

$K_{p,12}=$

$\tau_{p,11}=$

$\tau_{p,12}=$

$K_{p,21}=$

$K_{p,22}=$

$\tau_{p,21}=$

$\tau_{p,22}=$

Distillation Column Model

- Groups of 2
- Two Components
- Constant Relative Volatility
- Constant Tray Molar Holdup
- Liquid Feed at the Bubble Point
- 30 Trays, Reboiler, and Condenser
- Manipulated Variables
  - RR – Reflux Ratio
  - FBOT – Fraction of Feed Leaving at Bottoms Product
- Controlled Variables
  - x[1] – Composition for Overhead Product
  - x[32] – Compositions of Bottoms