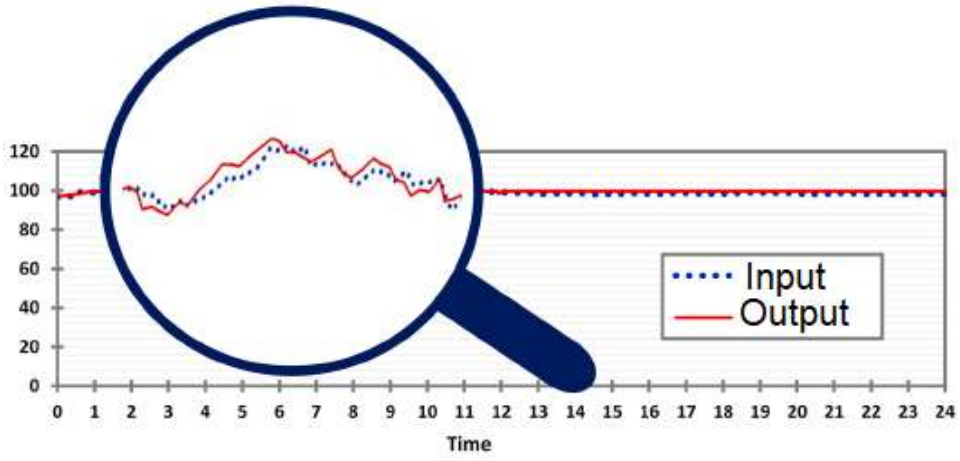
Consider a practical plant. Gather input/output data of a window from the system and find an ARMAX, ARIMA or ARX model for that special window (You can identify the model for the gathered data in a window). Then, design a Model Predictive Controller for the identified model. In each step of the algorithm, use the new data received from the new window of data to find a new ARMAX model for the system. Then, update the controller.



Please note that while the system model is running, the control optimization should be done and the control signal should be applied on the model. This is a data driven MPC design. Provide the source codes in Matlab and use YALMIP, Optimization Toolbox or CVX package to solve the optimization problem in each step.

Good luck.