

ISS0031 Modeling and Identification

Practical Work #3*: Artificial Neural Networks based Modeling

These exercises are meant to be completed in the MATLAB environment. A report must be submitted within 2 weeks from the date the practical work took place. It must contain the details related to the work and answers to corresponding questions.

Design and Training of ANNs in MATLAB

The first part of the lab will be devoted to the basics of designing and training of Artificial Neural Networks in MATLAB.

Modeling of Jacketed Continuous Tank Reactor

You are given a Simulink block representing a model of the Jacketed Continuous Tank Reactor—a benchmark chemical process. Inputs and outputs are normalized. You are requested to complete the following tasks.

1. Collect data from the process (get training data set);
2. Choose an appropriate structure of a Neural Network;
3. Train the network;
4. Validate the model in Simulink.

Compile the Report

1. Provide the analysis of the solution of the given task.
2. Draw conclusions based on the results of the work.
3. Compile your individual report and present it no later than **November 14, 2017** via electronic submission—as a PDF file—to aleksei.tepljakov@ttu.ee.