

## Abstract

Bachelor's graduation paper is executed on the theme “Automation of nitric acid manufacturing process”; it contains 78 pages of explanatory notes (A4), 27 illustrations, 3 tables, 1 supplement and 9 bibliographic items.

The analysis of the technological process as a control object is made in the graduation project; it's also developed the automation functional diagram, circuit diagram of the remote control and the emergency protection of electric motors, assembly and process flow diagram for the remote control system and technological exclusions; the appropriate automation equipment is assorted.

The heat exchanger was thoroughly selected as the integral part of the process. The dynamics and statics mathematical model is developed for the particular process; the transient behavior is constructed and the automatic controller is elected. The synthesis and investigation of process control system by means of the nitrous gas cooling is conducted within the framework of the paper.

**Keywords:** *NITROGEN, ACID, AUTOMATION, CONTROL, MODELING, OPTIMISATION, CONTROLLER, HEAT EXCHANGER.*