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Programming of Robotized Flexible Manufacturing System

Project 1.0101-0278
Application of Interdisciplinary and International Team and Project Based Learning in Master Studies
Study material for student course of Industry Automation

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Introduction

The aim of this project is to introduce students robot use in modern automation and manufacturing systems. It is required to teach them how to program a robot, develop existing manufacturing technologies and compile documentation.

After completing the exercises students will understand/be able to:

- use opportunities of a robotized cell and its role in the manufacturing system;
- technological process of the robotized manufacturing cell and are able to describe the process of product manufacturing;
- items of hardware modules and their functions in a technological process;
- functions of mechanical, pneumatical and electrical components and connection principles between these components;
- compile technical drawings of the mechanical part of a system and specifications of the components;
- compile the pneumatical schemes of a device and specifications of the components;
- compile electrical circuits and specifications of the components;
- assemble the manufacturing devices according to pneumatical and electrical schemes;
- compile different control algorithms optimize and document these algorithms;
- program robot CR1-571 control device and are able to write, smooth and simulate this program;
- load the program into a robot control device and start-up the program;
- importance of simulation for flexible automation of industry;
- use the COSIMIR Educational software and its functions;
- use the COSIMIR Professional software and its functions;
- follow and differentiate the function of a simulated and a real device;
- compile and review project reports;
- summarize practical tasks in the project and evaluate acquired knowledge.