

Summary of the project

Eötvös Loránd Secondary Technical and Vocational School is situated in the 20th district in Budapest. It has now two main profiles: mechanical engineering and information technology. Mechanical engineering has a longer history and also attracts more students, so we decided to apply for a project called:” ***Developing knowledge in the fields of planning and managing production, modeling technological processes***”. In this project 14 technician (14th graders) students were involved. They learned to become production system technicians. At the end of the academic year they took a complex examination, and as a result they received a qualification as a production system technician. This profession includes developing, planning, managing and controlling the process of production. We applied for this project to make the students build a complex production process from the beginning to the end, and in course of the training they were able to use the theoretical knowledge and practical skills they possess. The goal of the project was to enable students to plan, manage or modify any phases of process of the production on their own. At the end of the traineeship they were able to implement manual and mechanical cutting techniques used during the process of production, and they could program CNC machines. At the end of the traineeship they possessed global knowledge of different types of CNC controls and their programming. With the knowledge and skills they acquired during the traineeship they became more valuable in the job market, they will find job easily.

The receiving organization called Zespół Szkół Mechanicznych Nr 3. is a great secondary school in Krakow. We had already worked together, in this way we were fully aware of their personal and material conditions. The three-week traineeship took place in the workshops of the receiving organization and in their Examination Centre. The Centre is equipped with a lot of machines with the most modern controlling system. The participants worked on Siemens Sinumeric 828 controlled CNC CBKO VENUS 200 lathe machines and BCZ 200 Mini milling machines. On the CNC lathe the participants became to be able to identify tools based on the component drawing, fit tools into the machine, measure tools, adjust hydraulic chuck, hold work piece into the chuck, approach zero point and reference point, do zero offset, do tool correction and feed data into the machine, write

machining programme based on component drawing, identify and figure out necessary parameters (*feedrate, depth of cut, cutting speed, spindle speed, cooling*), do program simulation, notice and prevent impact hazard , produce the work piece, carry out tool correlation in case of dimensional inaccuracy. On the engine lathe they became to be able to do turning, do cross-lathing, do facing, work on 45⁰ plane selection, do deep hole drilling, clamp lathe tool into the tool holder, bore with screw-cutting die, bore with lathe tool, adjust pitch of thread, check thread with groove/rolling pass, adjust depth of thread .

In order to see how assembling and manufacturing work in a factory, the host school took them to visit MAN factory near Krakow, where a professional guide escorted them. There was another useful visit to the Krakow tramway depot, where the participants studied different lathe and milling machines in operation.

The project had a great effect on the participants. Not only their professional and technical skills and competencies were improved, but also they became more self-confident and independent. They became to be able to adapt themselves to new situations and circumstances. According to the participants’ opinion their work prospects are better in Hungary and abroad as well. They also realised the importance of tolerance in connection with other nations’ culture, value and people. They became more open and accepting, recognised their strengths and weaknesses. The results and the effects of the project are in accordance with the previous expectations. Moreover, as regards the social and personal skills and competences of the participants we can state, that the project has more positive outcomes than we thought.