

Vitalis – host organisation for Erasmus KA1 projects

VITALIS, as host organisation, receives participants from all European countries. Over the last 25 years we gained experiences from more than 1000 projects we realised in different fields of profession.

We develop model projects in the framework of Erasmus and ESF, also in cooperation with small and medium-seized enterprises in the region Leipzig and Halle.

We support the mobility of the participants in the European Community and the communication between people from all over Europe.

Our project proposal for your stay in Germany:

Title: Mechanics/Mechatronics - Traffic light

Duration: 2 weeks

Learning outcomes common to all professions:

- Health and safety at work - observes health and safety rules and SOPs
- Professionally oriented foreign language - improved ability to use a foreign language (English/German) in the execution of tasks and the ability to formulate short and comprehensible statements to communicate in the workplace
- Personal and social competences - develops a culturally and ethically sound approach to working with others in a company, increased creativity and consistency in their actions, copes with stress, responsibility and assigned tasks
- Organisation of work in small teams - increased ability to communicate and work collaboratively with colleagues, organise work in a team

Learning outcomes in the field of Mechanics/Mechatronics - Traffic light:

The student learns/knows:

- To select tools and measuring instruments, taking into account the accuracy of machining of workpieces
- To use tools and measuring instruments for manual processing
- To perform soldering of electronic parts
- To perform work in the field of manual and mechanical processing
- To use technical documentation of machines and equipment
- To carry out quality checks on the work performed
- To define the most important settings and parameters for the task
- To plan the dismantle equipment according to the technical documentation
- To perform tool maintenance
- To use SPS software layout
- To perform the wiring of various components according to technical diagrams

General tasks

The student develops their understanding of:

- 3D printing and prototyping (print traffic lights), construction the printer and parts if necessary
- Electronics (LED circuit boards for traffic lights)
- Assembly and wiring of elements and assemblies
- Programming the PLC (various tasks possible)
- Commissioning & fault analysis

Examples of possible placements:

- Electronics laboratory and workshop at Gut Wehlitz in Schkeuditz

All the above and below mentioned modules can be seen as examples. It's possible that we have to modify or adapt them due to the abilities of the participants or the capacities of the host company. The tasks and the activities vary and depend on the practical and the linguistic skills of the beneficiaries and on the needs and business volume of the companies.

Detailed training program - Mechanics/Mechatronics - Traffic light

1 st week Monday - Friday	<p>Program for Monday:</p> <ul style="list-style-type: none">- Introduction to the placement company and the daily working time- Information about the structure of the company- Getting to know the fields of working- Introduction to occupational health and safety- Introduction to the daily work activities, needed materials and tools <p>Program for Tuesday:</p> <ul style="list-style-type: none">- Design all 3D components- Create electronic diagrams for Traffic Light system <p>Program for Wednesday: 3D printing</p> <ul style="list-style-type: none">- Introduction to the 3D printer and software- Connecting the printer to a Laptop- Determine the most important settings and parameters - Perform proof printing <p>Program for Thursday: 3D printing</p> <ul style="list-style-type: none">- Print two traffic lights- Quality control- Mechanical rework <p>Program for Friday: Electronics</p> <ul style="list-style-type: none">- PCB assembly and soldering of electronic components- Check PCB and eliminate errors
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<p>2nd week Monday - Friday</p>	<p>Program for Monday: Electronics</p> <ul style="list-style-type: none"> - Mounting the traffic light on the base plate - Wiring of the various modules according to wiring diagram <p>Program for Tuesday: PLC programming</p> <ul style="list-style-type: none"> - Introduction to the SPS - Connect the PLC to a laptop computer - Introduction to the programming software - Hardware configuration - Explaining the various basic building blocks and functional elements (AND, OR, NOT, RS /SR flip flops and timers) - Use truth tables - Simulation of control systems - Exercises for programming the PLC <p>Program for Wednesday: PLC programming</p> <ul style="list-style-type: none"> - Analyse the flow chart for the traffic light control - define the inputs and outputs - Program and simulate the switch query <p>Program for Thursday:</p> <ul style="list-style-type: none"> - Program and simulate the control of pedestrian traffic lights and directional traffic lights <p>Program for Friday:</p> <ul style="list-style-type: none"> - Commissioning - Transferring the control system to the PLC - Error analysis and troubleshooting
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