



Certificate

This is to certify that

Vella Nedelcheva

born on **30.05.2001**

participated from **30.06.2019** to **13.07.2019** in the following project:

**Project name: "Facilitating the Transition from Education to the
Labour Market"**

Project number: 2018-1-BG01-KA102-047163

The training on **Robotics** took place at **WBS TRAINING AG** in **Dresden, Germany**.

The participant acquired the following skills:

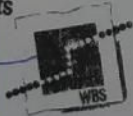
- **Unit 1:** History of and requirements on robotics
- **Unit 2:** Digital logic and control loops
- **Unit 3:** Programming the microcontroller, constructing a robot
- **Unit 4:** Giving a presentation on a professional topic
- **Unit 5:** Developing personal competences

For detailed description of the acquired skills, please see supplement.

The participant passed the training successfully.

The project was realized in cooperation with **Professional School of Telecommunications** in **Sofia, Bulgaria** within the framework of Erasmus+ Key Action 1 – Learning Mobility of Individuals Mobility project for Robotics learners and staff.

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Hugo-Junkers-Ring 5
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Laura Byfut

Coordinator of International
Education Projects

Peter Haubold

Trainer



Erasmus+

Dresden, 12.07.2019

WBS TRAINING AG
Business Centre Dresden North

Supplement: Units of Learning Outcomes Robotics

Assessment Instruments

Practical assignment
Oral Presentation



Professional Competence:

Unit 1: History of and requirements on robotics

Skills

- Classifying the formation and progress of robotics within the history
- Realising the need of development of specialised robotics for special scopes

Knowledge

- Acquiring knowledge about development of robotics and microelectronics
- Learning about the field of application of robotics – in the past and nowadays
- Knowing more detailed about special fields of application

Professional Competence:

Unit 2: Digital logic and control loops

Skills

- Designing and creating simple control loops
- Defining the terms "binary", "analogue", "digital", and "digitalization"

Knowledge

- Applying binary logic operators AND, OR, NAND, XOR, and INV
- Illustrating a logical task in a flow chart
- Simulating a circuit diagram by discrete components

Professional Competence:

Unit 3: Programming the microcontroller, constructing a robot

Skills

- Solving simple logic problems
- Constructing an autonomously operating and microcontroller controlled robot in team work

Knowledge

- Getting familiar with the *ATMega CPU* and *Alduino* experiment board
- Controlling of in- and outputs
- Programming the logic in programming language C

Personal Competences

Unit 4: Developing Personal Competences

- Applying effective time management
- Working in a team confidently and self-responsibly
- Listening to other team members' ideas and phrasing feedback adequately
- Preparing a comprehensive presentation in MS PowerPoint and presenting it to an audience.
- Presenting work processes and results in a foreign language (English) using adequate terminology
- Acquiring intercultural competences while staying in a foreign country


Holder of the document

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4 DATE OF BIRTH	5 NATIONALITY	
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dd mm yyyy		


Issuing organisation

6 NAME OF THE ORGANISATION *	7 DOCUMENT NUMBER *	8 ISSUING DATE *
PROFESSIONAL HIGH SCHOOL OF TELECOMMUNICATIONS	2019 – EM – ERA+ – 2018-1- BG01-KA102-047163 – BG/07	12 07 2019
		dd mm yyyy

Sending partner

9 NAME AND ADDRESS *	10 STAMP AND/OR SIGNATURE
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* Headings marked with an asterisk are mandatory.

Description of the mobility experience

21 OBJECTIVE OF THE MOBILITY EXPERIENCE *

Developing professional knowledge and skills in the field of robotics. Understanding the culture of Germany, the regional specificity and the labor market in the engineering.

22 EDUCATION OR TRAINING INITIATIVE IN THE COURSE OF WHICH THE MOBILITY EXPERIENCE WAS COMPLETED

Third degree of professional qualification - undergoing training

23 COMMUNITY OR MOBILITY PROGRAMME INVOLVED

Erasmus +

Key Activity 1: Educational mobility for citizens

Educational mobility for learners in vocational education and training (VET)

DURATION OF THE EUROPASS MOBILITY EXPERIENCE

24 FROM * 01 07 2019 25 TO * 12 07 2019
dd mm yyyy dd mm yyyy

Skills acquired during the mobility experience

26A ACTIVITIES/TASKS CARRIED OUT *

There is training and practice in the field of robotic systems. The following topics are dealt with in practice:

History of and requirements on robotics

- Acquiring knowledge about development of robotics and microelectronics
- Learning about the field of application of robotics –in the past and nowadays
- Classifying the formation and progress of robotics within the history
- Realising the need of development of specialised robotics for special scopes
- Knowing more detailed about special fields of application

Digital logic and control loops

- Defining the terms“binary”, “analogue”, “digital”, and “digitalisation”
- Applyingbinary logic operatorsAND, OR, NAND, XOR, and INV
- Illustrating a logical task in a flow chart
- Simulating a circuit diagram by discrete components
- Defining the terms“control loop”, “actuating variable”, “disturbance”, and “control deviation”
- Designing and creating simple control loops

Programming the microcontroller, constructing a robot

- Getting familiar with the ATmegaCPU and Arduinoexperiment board

- Controlling of in-and outputs
- Programming the logic in programming language C
- Solving simple logic problems
- Constructing an autonomously operating and microcontroller controlled robot in team work

27A JOB-RELATED SKILLS

The trainee acquires skills for:

Giving a presentation on a professional topic

- Researching information on the internet using filters, comparing sources and filing it in folders on the hard drive
- Defining the issues of a complex professional task and their solutions
- Preparing a presentation about the project work in MS PowerPoint
- Presenting the work results in English/German using adequate terminology

Working in a team confidently and self-responsibly

- Setting work priorities and applying effective time management
- Sharing information with the team
- Listening to other team members' ideas and phrasing feedback adequately
- Assuming the own role and taking responsibility for own activities

28A LANGUAGE SKILLS

Due to communication with employees and clients of the company during the practice, reading of specialized literature in English and active use of the specific terminology, the level of proficiency in conversational and technical English is raised.

As a result of communication with WBS trainers during the practice, reading of specialized literature in English and active use of specific terminology, the level of proficiency in spoken and technical English is increased. German language is used in everyday communication.

29A COMPUTER SKILLS

Enhancing digital skills by using different software products to prepare and present the practical tasks.

Presentation skills - work with PowerPoint

Controller programming skills

30A ORGANISATIONAL / MANAGERIAL SKILLS

Skills for time planning and assignment of priority tasks.

31A COMMUNICATION SKILLS

Excellent communication skills in everyday contacts with company employees and mentors. It fits well into the work of the team and shows a good knowledge of specific activities.

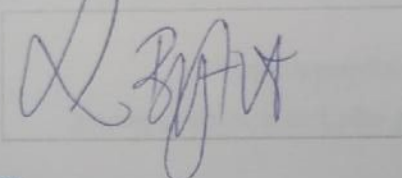
32A OTHER SKILLS

- Increased motivation for professional and personal development and participation in forms of lifelong learning.
- Better knowledge of culture, traditions, lifestyle and work in Spain and Europe.
- Awareness of the professional training of staff in other countries and an adequate assessment of the level of personal competitiveness on the world labor market.

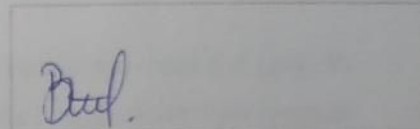
33A DATE *

14 07 2019
dd mm yyyy

34A SIGNATURE OF THE REFERENCE PERSON/MENTOR *



35A SIGNATURE OF THE HOLDER



* Headings marked with an asterisk are mandatory.