Erasmus Course
Basic of Arduino microcontrollers
Description

Vasil Levski National Military University
Doc.: ES/2018/08
Date: ___-___-_____
Origin: BG VELIKO02

Country BULGARIA	Institution Vasil Levski National Military University	Course **Basic of Arduino microcontrollers**	ECTS **5.0**
Service **All** Languages **English, Bulgarian**		Minimum Qualification for Lecturers • English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG 6001 Level 2. • Adequate pedagogical and psychological competences. • Teaching is committed to creating a basic knowledge for designing and programming simple Arduino microcontrollers circlets. • Thorough knowledge of the topic taught.	

Prerequisites for international participants: • English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2. • Basic knowledge of Operational Systems, electricity and programing.	Goal of the Course: • Learn the basic knowledge for designing simple Arduino microcontrollers circlets. • Gain knowledge for programming simple Arduino microcontrollers circlets. • To become able to design, built, program and use simple project with Arduino microcontrollers.

Learning outcomes	Knowledge	• The structure of simple electrical circlets. • The structure of Arduino microcontrollers. • Install, configure, manage modern Arduino IDE. • Safety rules and protections working with Arduino microcontrollers. • Knowledge to design, built, program and use simple project with Arduino microcontrollers. • Practical exercises allow learners to broaden and deepen their knowledge of using Arduino microcontrollers for different tasks.
	Skills	• To apply gained knowledge about simple electrical circlets and to use it with Arduino microcontrollers. • Design real project with Arduino microcontrollers. • To install, maintain and manage modern Arduino IDE.
	Competences	• Describe the family of Arduino microcontrollers. • Capability to integrate and use Arduino microcontrollers with simple circlets. • Capability of maintaining and modifying Arduino microcontrollers circlets. • Capability to design, built, program and use simple project with Arduino microcontrollers. • Able to provide the required level of knowledge for using Arduino microcontrollers.

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Verification of learning outcomes

- **Tests**: At the end of each topic of the course students must complete specific practice quiz.
- **Project:** Self design of Arduino microcontroller project.

Course Details		
Main Topic	**Recommended WH**	**Details**
Basics of the Arduino microcontrollers circlets	15	• Introduction to simple circlets. • Introduction to electricity rules of simple circlets. • Safety rules and protections working with Arduino microcontrollers. • Introduction of online tools for learning process. • Exercises
Basics of programing Arduino microcontrollers circlets in Arduino IDE.	25	• Introduction to programing tools. • Setup Arduino IDE. • Introduction to programing in Arduino IDE. • Introduction to programing basic Arduino code. • Functions and arguments. • Branch and cycle constructions in the program code • Work with arrays. • Exercises.
Course project - create a WEB site with dynamic content	20	• Design, built and program project with Arduino microcontrollers. • Project presentation.
Total	60	