

Learning objectives - Electronics and Programming Basics

Programming: Student...

- ... can make, save and run a program in the Arduino programming environment (IDE)
- ... can understand what is a syntax of a programming language
- ... can write basic programming commands from scratch with correct syntax
- ... can understand how a computer reads the program
- ... can read error messages and fix the program according to them
- ... can use variables and conditional statements
- ... can read comments and use them to explain the code.
- ... understands that programming can be a creative skill, like writing or playing!
- ... knows how to monitor data from the Arduino microcontroller with serial communication
- ... knows how to use sensor data as an input for the program

Electronics: Student...

- ... understands what programmable electronics like Arduino is for and what can be made with it
- ... knows the basic Arduino workflow and the pin structure of the board
- ... understands the basic concepts of electricity and circuits
- ... can read simplified circuit diagrams and create circuits with them
- ... knows how to use basic types of electronic components (LED, servo motor, piezo speaker, resistor, push button, different switches, LED, potentiometer)
- ... understands the difference between analog and digital input
- ... understands the difference between analog and digital output

Creative Project Work: Student...

- ... can search for inspiring projects in the web
- ... can observe one's surroundings and come up with real-world project ideas
- ... has knowledge of how to use different materials and everyday objects as project materials
- ... can develop one's own project idea into a working prototype
- ... can give constructive feedback of the creative projects of others.
- ... can utilise the feedback given by others to develop his/her own project further