

Course Information

Title	STEM and Robotics
N. of Participants	8-20
Course Length	One Week (6 day, Monday – Saturday)
Language	English
Location	Trikala
Cultural Activities	The course Include one day Cultural activity, City Guided and Excursion to Meteora (a unique geological phenomenon included on UNESCO's World Heritage List)
Type of certification awarded	A course certificate of attendance will be given to all participants. A Europass Mobility Certificate will be given if the participants demand.
Price	480* *Completely funded by the Erasmus+ KA1 funds It includes: Preparation for the course Training materials Administration costs Cultural activities costs
Course URL	https://eedive.gr/erasmus-ka1-courses/
Lessons	Classes take place in the Morning (9:00 – 14:00) or in the Afternoon (14:00 – 19:00).

Audience	<ul style="list-style-type: none">) Teachers (primary, secondary, vocational, adult, special needs);) Teacher trainers;) Managers of schools.
Course Date	4 – 9 July 2022
Preparation	A detailed pre-course questionnaire to indicate the level of experience, teaching backgrounds and training will be completed by participants.
Description	<p>The course aims at providing teachers with practical ideas on how they can incorporate technology into their lessons, promote basic training on topics such as controls, automatism, robots and programmable machines and to familiarize them with current use of robotics and coding in nowadays education trends. There is no need of prior knowledge of the Arduino board and programming methods, as the course starts introducing everything from scratch.</p> <p>By the end of the course you will have all the skills required for your own Arduino project. During the course we will give you an Arduino set and all the different parts needed to work on your own. After just a few practice exercises you will start to understand not only the C++ coding language, but also how the different devices around us actually work.</p>
Learning Outcomes	<p>The course will help the participants to:</p> <ul style="list-style-type: none">) provide teachers with practical ideas on how they can incorporate technology into their lessons) promote basic training on topics such as controls, automatism, robots and programmable machines

	<ul style="list-style-type: none">) develop and integrate new strategies into the school´s curriculum) work to complete customizable full Arduino project autonomously, from the beginning to the end) understand the function of electronic sensors and components) learn to build your own led circuit) plan and design innovative and fun tools for education.) improve their knowledge and skills in the field of STEAM & robotics) create interactive STEAM learning materials to be used into classroom) improve the quality of teaching, studying and learning processes through the use of technology
Methodology	<ul style="list-style-type: none">) The methodology that is going to be used in order to introduce the participants into STEAM education will stimulate active participation and build a diverse and stimulating environment for reflecting, working and learning) The methodology includes lectures, presentations, team-working, web resources, project-based working, and practical sessions (hands-on practice).) Each participant will be assessed throughout the course
Day 1 Course introduction	<ul style="list-style-type: none"> Z Introduction to the course and the external week activities - Getting to know each other Z Identification of needs and goals for each participant and relevant populations Z Introduction to STEAM field along with the concepts, theories, practical applications.

	<ul style="list-style-type: none"> Z Robotics current developments, use in education Z Introduction to electronics. Basic concepts. Z Introduction to control systems and robotics with arduino board Z Introduction to coding with ardublock and Wiring C
<p>Day 2 Learning the basics with Tinkercad</p>	<ul style="list-style-type: none"> Z Introduction to Tinkercad –Simulate the Arduino Uno Z Variables and functions. Programming conditioning sentences and loops. Programming, communication for serial ports Z Use of sensors: potentiometer, lights, button Z Use of peripheral devices: LEDs, DC motors, buzzers Z Group Project: making a digital dice; simple traffic light; two traffic lights
<p>Day 3 Put it to the test</p>	<ul style="list-style-type: none"> Z Explore the kit you have in front of you. Learn about Arduino board, and install all his parts. Z Introduction to learning by doing Z Write your first wiring C program to control a button to turn led on/off. Other experiments with the led. Z How to utilize and program robotic sensors in order to teach STEAM concepts
<p>Day 4 Experiment with sensors</p>	<ul style="list-style-type: none"> Z Sound and light sensors. Control digital output using physical input. Z Experiments with sensors. Program the Arduino board to see values of the sensors on a serial monitor. Z Group Work: each trainee will present and deliver his/her project, which will be the composition of everyday projects created by the participants, according to the training program.

Day 5 Technical Visit	Z Create an educational scenario with Arduino Z Visit to an institution / school working on STEM and robotics
Day 6 course closure	Course evaluation: round up of acquired competences, feedback, and discussion; Awarding of the course Certificate of Attendance; Excursion and other external cultural activities.
Follow-up	Trainees will have access to the course materials via Saplle's E-learning Platform.