KA1 ERASMUS+

FOR EDUCATORS & TEACHERS

"STEM Education"

Digital Idea

Scientific Association

Presentation

The ***"STEM Education"*** course provides STEM (Science, Technology, Engineering and Mathematics) teachers with resources and ideas to develop more engaging science lessons and to increase students' interest in STEM subjects and careers.

The introductory presentation of SCIENTIX, the online Community for Science Education in Europe, follows a series of lectures and short workshops. The participants will be introduced to Circuit boards and activities, Robotics, 3D Printing, and the using of smartphone in the classroom to implement STEM scenarios. In more detail, this course includes:

- The presentation of SCIENTIX.
- The Development of applications for computers and smart mobile devices, with drag and drop programming environment, using blocks.
- The Implementation of robotic constructions by connecting sensors and actuators and programming them visually.
- The Development of analogue and digital electronic circuits with physical equipment, as well as virtual, using simulation applications.
- The Acquaintance with procedures for designing, digitizing, and producing objects using 3D printing technology.
- The benefits and challenges of using smartphones in the classroom to implement STEM scenarios.

Trainees will be encouraged to think creatively, propose and test solutions for different real-life scenarios and problems. After completing the course, they will be able to provide their students with an effective means to engage in exploring STEM concepts, practices, and phenomena.

Objectives

The aims of the course will be:

- To support teachers who are or will be involved in the teaching of STEM, either as a direct subject or as an element of another subject, with their delivery of computer science theories, concepts, principles, and activities.
- To provide teachers with concrete ideas and resources concerning STEM.
- To provide teachers with an overview of the societal context and rationale for the teaching of programming.
- To offer teachers a place of exchanging, with other like-minded peers, resources, solutions to real-life problems and provide feedback and guidance to each other.

Pre-departure

Trainees will receive a questionnaire, which will provide information on their teaching background, qualifications, previous experience with STEM, programming, robotics, Electronic circuits, and 3D Printing, as well as their expectations of the course.

Target groups

The ***"STEM Education"*** training course is addressed to schoolteachers, VET teachers and trainers who wish to acquire the skills for introducing new methodologies in their organizations/schools.

Labs

The lessons will take place in modern full equipment laboratories.

Language of the course

English

Program

Day 1

Participant arrival, individual orientation and information about the venue and the city.
Presentation of the course, the trainers, and participants.

SCIENTIX: The Community for Science Education in Europe

- Projects
- Resources
- Online community (discussion forum, Communities of Practice, chat, online meeting rooms, workshops, webinars)

Day 2

Circuit boards and activities

- Create analogue and digital electric circuits.
- Experiment with simulators.
- Program microcontrollers and interconnect them with actuators (LEDs, LCDs, lights, speakers, motors) and sensors (buttons, infrared receivers, distance detectors).

Day 3

Robotics

- Build and program a robot.
- Use of sensors and actuators.
- Evaluate and optimize performance.

Day 4

3D printing

- Apply 3D printing techniques in the learning environment.
- Design models in 3D space and Capture real things.
- 3D printing of solid objects.

Day 5

Smartphone in the Lab

- Use of smartphones to calculate noise, oxygen, temperature, CO2, humidity, brightness.
- The benefits and challenges of using mobile in the classroom to implement STEM scenarios.
- Curate problem-solving activities.

Day 6

Practice and reflect upon learning by doing with STEM

- Space for discussion of future cooperation and planning follow up activities.
- Course roundup and final evaluation.
- Validation of learning outcomes and certification ceremony.
- Participants' departure.

Fees

Course fee: 480,00€ (VAT included). It includes:

- ✔ Preparation for the course
- ✔ Training materials
- ✔ Administration costs
- ✔ Organizational costs

Follow-up

Trainees will be given soft and hard copies of all lesson materials, which they can review at their leisure in addition to presenting them to their colleagues at their organizations. Also, an e-community of participants will be created to exchange ideas/experiences.

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Erasmus+ KA1 Courses in Greece

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- ✓ ***Minimum number of participants: 6***
- ✓ ***Maximum number of participants: 18***

If you have a group of 6 staff or more, please contact us for convenient dates