




COMPUTATIONAL THINKING & PROGRAMMING (PYTHON) - MATH CLASSES



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OID: E10201112

Advanced Institute for Skills Development



COURSE DESCRIPTION

Computational thinking helps you develop logical processing and algorithmic thinking while solving real-world problems across a wide range of domains. There's a shift in mathematics education from procedural symbolic manipulation toward skills, like computational thinking, that better prepare students for the future of work.

Python is a free, popular, powerful and easy-to-learn programming language. With the aid of the Python programming language and a multiple math platform developed by Texas Instruments (that adds modules for Python, like BBC microbit), you'll learn how to visualize solutions for a range of math problems as you use code to explore key mathematical concepts like algebra, trigonometry, matrices and cellular automata.

People learn best by doing.

This hasn't been a daily practice in schools, though, which tend to favour passive learning. "Doing" in English and history classes might mean students write papers or give presentations, and science students perform experiments, but what do math students do? Teachers can use this course's ideas to challenge their students, making math more approachable and relevant.

What better way to teach this subject (e.g. the sum of many terms in a sequence) than in a real-world context?

What better way to develop a math teaching technique in a STEM context?

Once you develop some programming knowledge, especially when you know how to use Python, you can do this and much more!

DAILY PROGRAM

6-DAYS

..... *Our courses also include a daily Coffee Break

DAY 1 / 16h30-21h30

- Self Preparation for a short School presentation on Day 2
- Cultural Quiz (to be filled out pre-dinner)
- Welcome Session - icebreaking & dinner, week briefing & planning
- Networking between participants and Erasmus+ team
- Sharing of European core values
- Open space for participants to share ideas and discuss current challenges in the Education sector; collaborative opportunity to exchange future goals (activity)

DAY 2 / 8h30-13h45

- Computational thinking & its importance for learning mathematics
- Developing computational thinking in mathematics without programming - examples
- The need for a programming language to fully develop computational thinking and the motivation for learning math

DAY 3 / 8h30-13h45

- First steps in Python programming language
- Solving math problems by applying simple Python's programming language features
- Python conditions in a real-world context

DAY 4 / 8h30-13h45

- Using Python lists to solve problems with data and probabilities
- Functions in Python
- Case practice, individual work

DAY 5 / 8h30-13h45

- Texas Instruments Turtle graphics module / BBC micro:bit with Python
- Activity performed for students during maths and/or STEM classes using Python language (its capabilities and tools)
- Group Work

DAY 6 / 8h30-13h45

- Activity presentation
- Course roundup, feedback, & review
- Learning outcomes' validation
- Certification Ceremony



ADDITIONAL INFORMATION

Documentation: Learning Agreement; Certificate of Attendance with description of learning outcomes; Europass validation; and other required Erasmus+ supporting documents.

(Our courses are eligible to be completely funded by the Erasmus+ program 2021-2027 - KA1 funds and several other programs)

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✉ learningtogether.eu@sinerconsult.pt

🌐 www.learning-together.eu | (351) 229 418 490 - Portugal

