

INNOVATIVE MATHS AND SCIENCE APPLICATIONS AT SCHOOLS (STEM) - Brussels

This course is a kind of teacher training course which aims to support school staff with a new and innovative approach to teach Maths and Science and encourage their students learn Maths & Science in more effective ways in line with priorities of Erasmus Plus Program.

“The best mathematics teachers will be the ones who have been prepared to empower their students as mathematicians and to teach students that mathematics makes sense.”

While all curriculum areas share some of the same issues and concerns, individual curriculum areas seem to also have concerns specific to them and their courses.

The list below looks at the top ten concerns for Maths & Science teachers;

1. Prerequisite Knowledge
2. Connections to Real Life
3. Cheating Issues
4. Kids with "Math Blocks"
5. Varying Instruction
6. Dealing With Absences
7. Grading Concerns
8. Need for After School Tutoring
9. Having Students of Different Abilities in Class
10. Homework Issues

The ultimate goals of mathematics & science instruction are students' understanding the material presented, applying the skills, and recalling the concepts in the future. There's little benefit in students recalling a formula or procedure to prepare for an assessment tomorrow only to forget the core concept by next week. It's imperative for teachers to focus on making sure that the students understand the material and not just memorize the procedures. Some ways to teach for understanding in the mathematics classroom will be focused on:

1. Create an effective class opener.
2. Introduce topics using multiple representations.
3. Solve the problems many ways
4. Show the application.
5. Have students communicate their reasoning.
6. Finish class with a summary.

Moreover the participants will be familiar with the Web 2.0 tools and use of digital Technologies as well as the ways of fostering Creativity and Collaboration in Math & Science Classes
As a course provider, we want to develop the teachers' professional skills, and introduce to appropriate applications, ways and methods to teach Maths & Science related to 21st-century teaching methods focusing on creative thinking with interactive and inspiring workshops in a friendly atmosphere. Goals of the course;

Learning Outcomes

All the participants will:

- Identify the Obstacles in Teaching and Learning Math & Science
- Focus on the best practices about teaching Math & Science in Europe and in other parts of the world
- State the main points of common Math & Science curricula in all levels in Europe
- Define new and innovative methods and applications in teaching Math & Science at schools
- Be familiar with the web 2.0 tools and digital technologies in math & science classes
- Foster creativity and collaboration in Math & Science classes

Objectives

- Modernization of your teaching style
- Developing a school policy plan on teaching Math & Science in an effective and innovative way

- Writing learning objectives
- Planning how to teach and assess students
- Finding out the ways to teach Math & Science in more effective and innovative ways
- Covering the different types of activities a teacher can use to modify his/her teaching skills
- Understanding the importance of group dynamic
- Improving teaching methods in relation to technology
- Managing and integrating ICT in the lessons
- Developing the ICT skills and make use of various Web 2.0 Technology tools and programs.
The participants will be given the opportunity to try out and have practice and get feedback all the programs introduced to you.
- Adapting of the use of the tools to your teaching & learning situations & contexts
- Focusing on effective teaching strategies that encourage the active involvement of all students in productive educational environment
- Developing strategies to improve the educational quality of the school.

Methodology

- Identifying and defining
- Brainstorming
- Working in groups
- Creating plans and programs
- Creative thinking
- Practicing and applying

Target audience Teachers, trainers, educators, school administrators, etc.

Preparation A detailed pre-course questionnaire to indicate their level of experience, teaching backgrounds and training will be completed by participants.
The participants will also prepare a presentation to reflect their own teaching method.

Validation A course participation certificate will be given to all participants.
A Europass Mobility Certificate will be given if the participant demands, as well.

Schedule of the Course “Innovative Math and Science Applications”

Day 1

Getting to know each other – Presentation of participant organizations (a five-minute presentation)

- Meeting, information about timetable and course.
- Identify the obstacles in teaching and learning Math& Science
- The best practices about teaching Math and Science

Day 2

Getting to know each other – Presentation of participant organizations (a five-minute presentation)

- Meeting, information about timetable and course.
- Identify the obstacles in teaching and learning Math& Science
- The best practices about teaching Math and Science

Day 3

Focusing on different types of activities a teacher can use to modify his/her teaching skills

- Modernisation of your teaching style
- Developing a school policy plan on teaching Math and Science in an effective and innovative way
- Find out the ways to teach Math and Science in more effective and innovative ways
- Cover the different types of activities a teacher can use to modify his/her teaching skills
- Modernisation of your teaching style
- Developing a school policy plan on teaching Math and Science in an effective and innovative way
- Find out the ways to teach Math and Science in more effective and innovative ways
- Cover the different types of activities a teacher can use to modify his/her teaching skills

Day 4

Understand how the Math and Science provides an environment for individualized learning

- Create a lesson plan for the assessment that will be performed in the classroom
- Cover the different types of activities a teacher can use to assess
- Find out the basis of differentiating assessment ways and methods
- Teaching Math & Science related to 21st-century’s teaching methods
- Focusing on creative thinking with interactive and inspiring workshops

Day 5

- How to improve your own teaching methods in relation to technology
- Manage and integrate ICT in your lessons
- Discussion about the content being processed
- Practice some effective and inspiring Web 2.0 tools and digital Technologies
- Discussion of the use of web.2 tools at schools

- General evaluation
- Talk about participant applications and activities their schools
- Overview of the course program
- Evaluation of the course program
- Filling the feedback forms
- Europass Mobility Certificate and Participation Certificate