

COLLABORATION IN STEM EDUCATION

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HoPE



Hands on Physics Experience with MIT

"BUILD IT, LEARN IT, SHARE IT"

HoPE involves high school students and teachers in a new, more **experiential**, **collaborative** and **motivating** hands-on **fun** approach to Physics and STEAM in general.



HoPE IS

OF the students, BY the students and FOR the students.

They are empowered and in charge of their own learning (LEARN to LEARN).

HoPE PROGRAM SEQUENCE

- 1) Students **propose** ideas for many intriguing **STEAM projects** in group ideation sessions.
- 2) **TEAMS** then form around common interests.
- 3) University and experienced high school students are team **MENTORS** (PEER EDUCATION).
- 4) **Research, design, rapid-prototyping** and **testing** are the tools used to gain insights, skills and knowledge needed to build their final project (COOPERATIVE LEARNING).
- 5) Students **present** their devices in local, regional and international events **inspiring** other students with their creativity and skills.

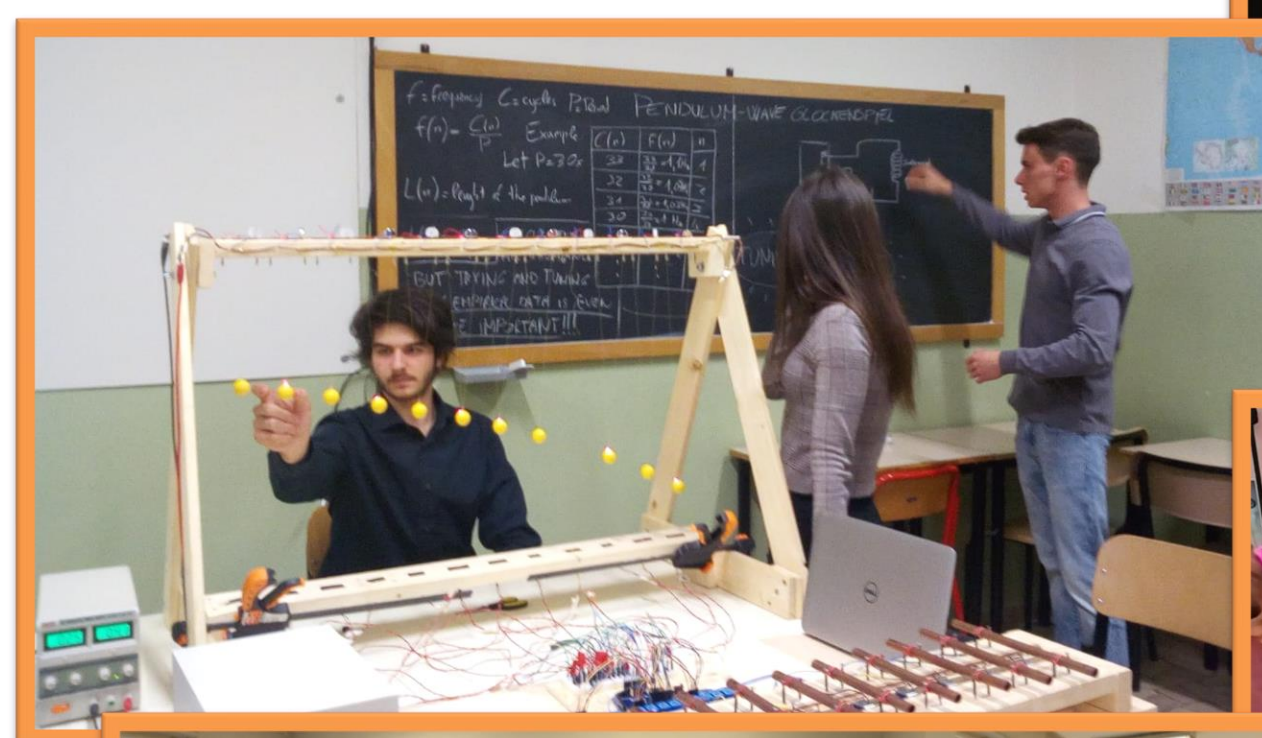
HoPE comes from a **collaboration** between:

- ✓ the **"A. Roiti" High School**, Ferrara, Italy;
- ✓ the **Edgerton Center of the Massachusetts Institute of Technology** (MIT);
- ✓ the **Physics Department** of Ferrara University (UNIFE);
- ✓ the **National Institute of Nuclear Physics** (INFN), Ferrara's branch.

HoPE has also developed collaborations, with:

- ✓ the Neuroscience and Rehabilitation Department of the University Hospital of Ferrara;
- ✓ local middle schools;
- ✓ international partners, such as the CIC Batxillerats in Barcellona (E) and the Schülerforschungszentrum Nordhessen in Kassel (D).

However, the strength of the program is the **COLLABORATION BETWEEN STUDENTS**.



Students develop an affinity for the topics and methods of STEAM as well as the life-long learning and collaboration skills needed to be successful (EU Council 2018).