



TECHNOLOGY IS NOT THE KEY TO STEM AND CREATIVITY

EXPERIENCE FROM TEACHING A COURSE CREATIVITY IN STEM INVENTION

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BACK OF THE COURSE

CREATIVITY IN STEM INVENTION

- Elective course in “**Creativity and STEM/STEAM**” Minor
- No pre-requisite for enrollment
- students with diverse background can register this course
- Formerly known as Creativity in Science and Technological Invention prior to 2017/18

TECHNOLOGY INTRODUCED IN THE COURSE CREATIVITY IN STEM INVENTION

- LINO board
- 3-D drawing and 3-D printing
- Open Source software and hardware
- Arduino
- Littlebits

CONCEPTUAL TOOLS FOR STEM AND INVENTION INTRODUCED IN THE COURSE

- Strategies for brainstorming
- Creativity and innovation is both a collaborative process and individual efforts
- Patents and copyright
- Open-source softwares and hardware system
- Design cycle

EXPOSURES TO IDEAS ON STEM INVENTION

- Historical cases of invention and scientific discoveries
- Examples of Past projects
- STEM and invention activity in the community
- Exemplar modules on using ARDUINO platform
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SOME EXAMPLE OF STUDENTS PROJECT

- [badminton grip for children](#)
- [wake up machine](#)
- [Rubbish bin](#)
- [An apps to teach maths to primary students](#)

INVENTOR'S MINDSET

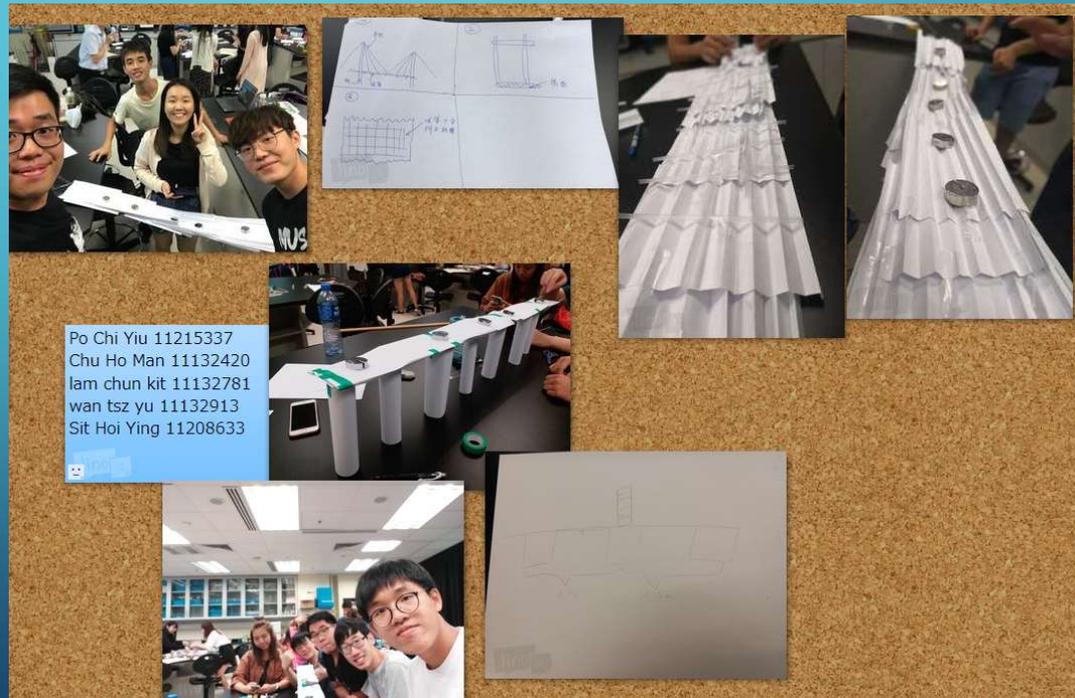
- Awareness of problems to be solved in their context
- **Brainstorming** different strategies for solving the problem
- **Choose** the most probable action plan for solving the problem
- **Demonstrating the feasibility** of selected solution through trials and errors
- **Optimizing** the solution for better performance

KEY CHALLENGES IN TEACHING THE COURSE

- STEM stress the importance of **problem solving in daily life**.
- Even when the students are presented with the necessary skills to start the exploration process, students often are very hesitant to start the exploration process, and can have a tendency to delay.
- **Implementing an idea** is the key step in invention. Encourage the students to go beyond “brainstorming” requires deliberate efforts in guidance.
- To successful implement some innovative ideas usually need a lot of **trials and errors**. The process can be quite frustrating if the students are not self-motivated.

LAST WORD...

- FUN is an important factor to drive educational process in STEM and Creativity.
- Bridge building activity



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