

eSTEM Crashed Courses at NU

from 26th of Aug to 6th of Sep 2018

Engineering & Technology and Specialisation Track PBL

1. Preparation Stage

- Powerpoint presentations covering the required contents as in eSTEM curriculum and student handout that contains all technical steps of development
- Lectures were given in labs equipped with necessary tools (ex. Solidworks, Proteus Electronics Simulation and Arduino Controller Platform)
- Workshop was ready with the required machines and equipment (ex. Laser cutting machine, 3D printer, electric circuits, ...etc.)

2. Implementation Stage

The content was divided into 3 parts during the duration of 2 weeks as follows:

- Engineering design process (4-days)
Some fundamental engineering concepts were explained summarising the main lectures prepared for the main course
Teachers are then asked to start design a solution for a problem given (green city project)
Teachers were allowed to work on solidworks and do some activities after explaining the main concepts by the instructors
- Technological Tools for Teaching and Learning (4-days)
Basic concepts in mechatronics and electronics were first explained
Teachers are then allowed to practice on proteus simulations software solving common requirements
The next step was that teachers were asked to design the mechatronics system for the same project (green city)
- Project practical work (2-days)
After the mechanical and electronics design stage, teachers had the chance to have some parts manufactured in the workshop and then they went through the assembly and programming process to integrate the mechanical system, sensors, actuators and controller (Arduino) all together

3. Evaluation

Evaluations for the 2 main stages of the course were performed by distributing a questionnaire on the teachers at the end of each stage, and the overall evaluation for both stages was satisfying. Links to the evaluation summary spread sheets are attached in the email.

From Mahmoud:

youtube link that documented eSTEM crash Courses in NU:

As always, we would like to appreciate IECC support with their Media and coordination team, especially Eng Heba Labib and Ziad Diab for thoeir always kind support

<https://youtu.be/IuSJgHYRjHk>

