

SUMMATIVE

Formative assessment of the In2ScienceUK placement at the School of Engineering of Lancaster University

Please, rate how appealing you found the following activities by marking with an X in the scale:

① no interested at all. ⑤ very interesting.

1. Construction of the prototype (cognitive exercise): Brainstorming on type of electric circuit that best suit the design of the artifact for reaching the targeted heating rate, heat distribution, and power consumption. Considering the desires and needs of potential clients for managing the organic slurry fertilizer (i.e. based on primary market research).

① ② ③ ④~~X~~ ⑤

2. Construction of the prototype (physical activity): Perforation of the holes in the plastic box, wiring the carbon fibre electric heater and the copper cable in the busbar, deploy the aluminium insulation roll to avoid heat loss and maximize the energy use efficiency.

① ② ③ ④ ⑤~~X~~

3. Operating the prototype (cognitive exercise): Thinking on how the artifact will be implemented at the premises of the client, taking into account all possible synergies and conveniences of the stakeholder (e.g. farmer, anaerobic digestion plant manager, etc.).

① ② ③ ④~~X~~ ⑤

4. Operating the prototype (physical activity): Use the trolley to move the artifact within the facilities of the school of engineering (e.g. moving it next to the power supply and carrying it to an open environment), open it to recover the dehydrated fibres and liquor, sampling the brine, and do the granulation.

① ② ③ ④~~X~~ ⑤

5. Analysing the results (cognitive exercise): Interpretation of the point of failure/breakage of the granules during the compression testing. Determination of the content of ammonia and carbon dioxide absorbed in the brine based on the titration curve. Assessing the rate of drying and slurry processing capacity of the artifact.

① ② ③ ④~~X~~ ⑤

6. Analysing the results (physical activity): Setting up the method for the compression test. Carrying out the filtration of the brine. Performing the calibration of the pH meter. Adding the acid/base titrant to the sample of brine (filtered and diluted) and wait for the pH to be stable.

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