

PHYSICS

Physics Trip to “Centre for Sustainable Energies”

Our prospective STEM students attended a renewable energy workshop at University of Ulster, Jordanstown on Wednesday 4th December 2019. The purpose of the visit was to understand how renewable energy resources are being developed, and to help combat the issues of climate change today and in the future. Both our Year 12 and 13 students went to familiarise themselves with the renewable energy technologies and how they can be used in our world.



We started off the day with an introduction to renewable energy by Dr Angela Rolfe, who explained to us the approaches they have taken in the production and storage of renewable energy. We then were given the opportunity by the PhD students to view and examine some of their research in various methods of renewable energy. Three experiments were demonstrated to us to highlight the challenges and advances in their research, with equipment such as batteries for storing energy from solar cells, turbines and heat sensitive or thermal heat imaging cameras. Each of the workshops had plenty of demonstrations and plenty of opportunities to see and use equipment.



The first experiment related to the challenges of energy loss, more specifically heat loss; to show the amount of heat energy lost in our common heating systems. The acknowledgement of this aids them in ways to reduce the amount of energy lost and therefore in reducing energy consumption. The experiment was to measure how much heat was lost from radiators around the building. The data is then used to reduce energy loss and consumption.

The second experiment was to measure the efficiency of a wind turbine. We used a miniature wind turbine and measured the power input and the output with power being calculated by measuring the voltage and current from either a 3 bladed or 5 bladed turbines. The results would be used to make sure that a maximum energy output was achieved, therefore providing the nation with reliable, clean and renewable energy.



The third experiment used a heat exchanger. This is used to release energy which could be stored in a battery and store electrical energy. The scientists used lights acting as an artificial sun to test out their theories and explore new ideas in the production and storage of electrical energy.

We still have a long way to go if we are to rely completely on wind or solar energy in the future. However, with further research we can achieve this goal ensuring a sustainable future for our world and hopefully our students will have the opportunity to be on the front line of this pioneering groundwork.