

Environment and Recycling program

Program Introduction

We define environment as the surrounding in which a person, animal, or plant lives or operates, in simple words, it's the system in which all living creatures operate and live in. we, humans, have influenced the environment in many different aspects in a very good way, but still we have distorted the eco-system of the environment in such a manner that may lead to the extinction of other creatures and maybe in worst case our own extinction. One of the most challenging problems the faces mankind now is how to save the environment by recycling wastes whether it is plastic, organic, or any other type of wastes.



The approach of this program will be different as it will focus on widening your scope about what environment is and how crucial it is to sustain it for the sake of our own existence. This approach will delivered to you by giving you some insights, deep dives and experience in many inter-disciplinary concepts, as well as, engineering and personal skills.



The goal of this program is to understand the scientific (Biology, Chemistry, and Physics) background of eco-systems, recycling, and sustainability, in order to submit a project, in the end of the program, which is related to recycling and/or sustainability, for example, a simple plastic recycling plant. Yet it is not all about science, this program will give you an exposure to

principles of design with CAD, using simulation software and statistical tools (LabView) and not to mention an exciting FabLab experience where you will see your designs come to life.

Whether you will be about recycling plastic waste, making furniture out of cardboard, even getting some fine elements, gold, out of electronics wastes, or you can let your creativity to take the slip and get us something completely out of the box, your place is definitely here.



Program Skills Structure

The set of skills in this program is dependent on three gears, knowledge, practice, and teamwork, so when one of them is triggered, the other two are triggered too. Yet after some time of exposure to this simple gear mechanism, you will be able to create a more complicated mechanism that fits you the most.

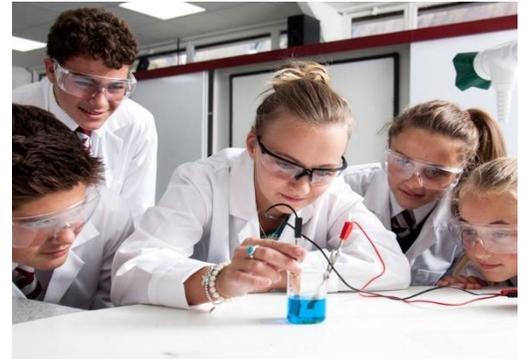


Knowledge gear will be the first to be triggered as it is the most important one and without it no other gear will be triggered. Knowledge is what drives us all, the true and the very meaningful value we need you to acquire. Then here comes the next gear, Practice, where you will do science and knowledge and try to practice your knowledge and connect it to real life problems. However, teamwork gear is very essential aspect of our programs. Thus, you and your team will be required to do some tasks through the program in which you will learn

time management and collaboration to achieve success. Moreover, the program will expose you to economic and business management skills that are crucial to achieve success and to prepare you for a challenging tomorrow's world experience.

- Scientific and knowledge skills

As the main core of the program is to make a project but you must have to know the essence of what and how your project works according to the science and knowledge perspectives. You don't have to stress out, we will get you through the required scientific base you need.



- Engineering and Hands-on skills

After acquiring the knowledge, it's time to connect it to real world and practice it. Using different machines, instruments, equipment, and tools. You and your teammates will experience the joy and excitement of creating something from scratch and watch it come to life. Something that resembles everything you learnt and directed to environment and recycling.



- Personal and Teamwork Skills

No one can achieve success only by himself. Yet we have different and diverse personal and social backgrounds, but we have to learn how to work as a team, as one, to achieve our goals whether it was the assigned tasks or anything else. For sure, you and your mates may get into opposite opinions, frustrated with different decisions,



or even passing through hard times, but all of these things are what leads you to the best solution and ensures the best outcome. It is not only about getting a project done, it is an experience and a skill that you will carry with you for the rest of your life and it will prepare you to face tomorrow's world with flexibility and strong character.

Program Progress Phases

Phase 1 - Preparation

In this phase you will be introduced to what is environment and eco-systems, recycling processes and techniques for different types of wastes, and what sustainability and how it is achieved.

- **1.S: Scientific and knowledge content**

Biology and chemistry of eco-systems, simple and essential chemical reactions, simple physics and chemistry of different recycling process and techniques for different wastes, and sustainability.

- **1.E: Engineering Practices**

Case studies for eco-systems, studying why they fail or succeed to be a good eco-system. Case studies for how different types of wastes affect the environment. Case studies for how to achieve sustainability and why it is so important to achieve it.

- 1.H: Hands on Activities and checkpoint assignment

Doing a case study analysis about eco-systems, and the development of recycling processes and techniques for a specific type of waste of your choice.

Phase 2 - Design

In this phase you will be through something exciting, learning whatever it takes to start designing your project. CAD Software, simulation software, and chemical reactions experiments.

- 2.S: Scientific and knowledge content

Deep dive into chemical reactions, recycling processes and techniques for different wastes, and sustainability.

- 2.E: Engineering Practices

CAD design (Solid Work), Simulation and Test parameters (LabView), and doing some chemical reactions in the lab.

- 2.H: Hands on Activities and checkpoint assignment

Complete CAD and Simulation test of a recycling process and technique of your own choice.

Phase 3 - Implementation

In this phase, all your dreams shall come true. It will completely dedicated the prototype of your project and watching it come to life. You shall re-design and re-build your project, if any error were found in the prototype.

3.E: Engineering Practices

Fab Lab, Real time testing, Re-Design and Re-Implement.

3.H: Hands on Activities and checkpoint assignment

Project Construction and Real operation.