

# ENG2801 Leadership & Innovation

## Main Group Assignment

The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The 17 Goals were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals. Details of each of the goals can be obtained in this [link](#).

Today, progress is being made in many places, but, overall, action to meet the Goals is not yet advancing at the speed or scale required. Year 2021 needs to usher in a decade of ambitious action to deliver the Goals by the year 2030.

The current COVID-19 pandemic has not just affected the goal for good health and well being. It is adversely affecting the other goals too be it directly or indirectly. Therefore, new innovative solutions need to be developed to ensure the development goals could be achieved sustainably.



Figure 1. List of Sustainable Development Goals (Source: [United Nations](#))

As leaders and innovators, your team is entrusted to answer this universal call to action. In this assignment, your team would need to generate solutions for a selected problem within either one of the Sustainable Development Goals. The following are the main sections that you would need to work on with your team.

### **1. Problem Selection (4 Marks)**

- a. Select one of the Sustainable Development Goals to pursue.
- b. Identify a problem within that sustainable development goal which your team would like to solve.
- c. Justify the need and urgency to solve the selected problem and state what inspired that choice.
- d. Choose the best solutions for the selected problem that already exist in the market as benchmarks.
- e. State the existing problems of the benchmarked solutions. Also identify the right root cause of the problems.
- f. The root cause should be able to be solved with a product-based solution.

### **2. Tools Usage (8 Marks)**

- a. You would need to use all of the TRIZ tools covered in the semester (from Week 2 till Week 6, excluding all guest lecture contents) to explore the problem further and generate solutions.
- b. The tools need to be used correctly. All working steps have to be documented in detail.

### **3. Solution Generation (10 Marks)**

- a. All generated solutions need to be described in writing and high quality sketches. Computer aided drawing is preferred.
- b. Improvements and evolution of solutions with the use of the different TRIZ tools need to be explained.
- c. Originality and novelty of your solution(s) is important. Provide evidence that your solution(s) is novel through a quick search in the patent database and in the internet search engines. For the patent search, you may use the [google patents search](#).
- d. If your solution(s) has already been developed or patented by others, innovate them further so as not to infringe the existing intellectual property.
- e. The practicality aspects such as cost and technology availability also need to be considered.
- f. Provide a cost estimate to develop your chosen solution(s).
- g. Compare the ideality of your final solution with the other generated solutions and with the other benchmarked solutions that already exist in the market.
- h. Determine what sets your solution apart.
- i. Predict the future evolution of your solution and the expanded areas of application for it.

#### 4. Report Format (3 Marks)

- a. The assignment is to be submitted in a proposal report format.
- b. It has to be professionally written and presented.
- c. The aim of the proposal is to convince investors to invest into your project.
- d. All of the contents mentioned in sections 1, 2, and 3 above need to be included.
- e. Referencing is to be done using [IEEE style](#).
- f. The report submission is due at the end of Week 11 (**21st May 2021, Friday, 5.00pm**).

#### 5. Presentation (5 Marks)

- a. The contents of the presentation should contain the important parts of your proposal report.
- b. The presentation shall be in pitching format to judge panellists who shall role play as potential investors for your project. Your aim is to get them to invest in your project.
- c. Each group is allocated strictly 10 minutes of presentation and 5 minutes of question and answer.
- d. It is not compulsory for all team members to be speakers during the presentation.
- e. The key points should include the following:
  - What your invention does
  - Where you got your inspiration
  - How it works
  - How you developed your design
  - What sets it apart
  - What the future holds for it
- f. **The group presentations will be during the workshop sessions in Week 12.**

## Further Information

### Section 1: FAQ

1. Could multiple root causes be chosen to be solved?  
Preferably one root cause is chosen. Then multiple solutions are generated. From there one final solution is chosen.
2. Which tools must be used?  
All the TRIZ tools covered from Week 2 till Week 6. All contents covered in the guest lectures are excluded.
3. What is the sequence of the tools?  
The different toolsets can be used to solve the same selected root cause or can also be used in sequence where the solutions generated by the first toolset is improved by the subsequent toolsets.
4. What is the format of the report?  
No specific format. As long as the thought process in iterating for the final solution is professionally presented in writing and sketches.
5. What is the length of the report?  
The quality (correct usage of the tools, explanation of the thought process, and novelty of the solution over the benchmark) is more important than the length.
6. Can the solution be in terms of policy change and software?  
The solution has to be a physical product.
7. How do we know the final solution is alright?  
It should be more ideal than the best solutions that currently exist and the solution or parts of it should be novel.
8. What are the key points that should be presented in Week 12?  
Here are the key points or sections:
  - What your invention does
  - Where you got your inspiration
  - How it works
  - How you developed your design
  - What sets it apart
  - What the future holds for it

## **Section 2: James Dyson Award Competition Submission**

More participation from each university is encouraged. Therefore, all teams in ENG2801 are to join with this main assignment project. Please register [here](#). **Provide screenshots of your submission in the appendix of your main assignment report.**

No extra work is needed. The required content submission is already part of your report. All the best and please check your email for the winner announcement on 25th August 2021. Do contact us for further assistance to compete at the international round upon winning the national round.