

IYALLA, I., MOULE, C., CHARLES, S. and MAHON, R. 2024. An enterprising approach to postgraduate engineering courses for sustainable futures. Presented at the 2024 Advance HE teaching and learning conference: future-focused education: innovation, inclusion and impact, 2-4 July 2024, Nottingham, UK.

# An enterprising approach to postgraduate engineering courses for sustainable futures.

IYALLA, I., MOULE, C., CHARLES, S. and MAHON, R.

2024

# An Enterprising Approach to Postgraduate Engineering Courses for Sustainable Futures



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SoE



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EIG



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UoO (EIG)



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SoE

# Postgraduate Module: Innovation and Sustainability

- **Module aim:** Provide students with experience of working as part of a **team** on a group project focused on identifying **innovations** to meet diverse societal needs aligned to one or more **UNSDGs**.
- **Postgraduate (MSc) engineering students:** Oil & Gas Engineering, Drilling & Well, Engineering Management; Renewable Energy Engineering.
- **Interactive sessions:** Bootcamp, Challenge & Change, UNSDGs, Design Thinking, Presentation Skills, and Reflective Writing.
- **Feedback loop:** Group discussions, Online forum, Padlet, Formative assessment, and Student Voice Module Feedback.

## Learning Outcomes

- LO1:** Evaluate the complexity of the selected UNSDGs to achieve target ambition.
- LO2:** Synthesise the concepts and approaches for innovation thinking for sustainability.
- LO3:** Generate a range of ideas that address issues from different perspectives using appropriate methodologies.

## AHEP 4

- M3:** Engineering Analysis
- M5:** Design and Innovation
- M7:** The Engineer and Society
- M17:** Engineering Practice

# Articulate Rise: Module Content

**ENM261 2023 Pack 2 CHALLENGE & CHANGE**  
0% COMPLETE

**VUCA world**  
RGU Innovation

In our increasingly Volatile, Uncertain, Complex and Ambiguous, world finding ways to respond to change is essential

CHALLENGE

- VUCA world
- Wicked problems

CHANGE

- Where does change come from?

INNOVATION

GROUP RESOURCE AREA

Share What You Find PADLET



**ENM261 2023 Pack 4 DESIGN THINKING**  
0% COMPLETE

**A Diverse VUCA World needs Design Thinking**  
RGU Innovation

Design Thinking is a human-centred methodology to help us work through a process for creating better solutions for real people

INTRODUCTION

- A Diverse VUCA World needs Design Thinking
- Equating "Value Proposition" with Design Thinking

EMPATHY TOOLS

- Customer Journey Mapping, Storyboarding and Visualisation
- Interviews, Customer Discovery and Role Play

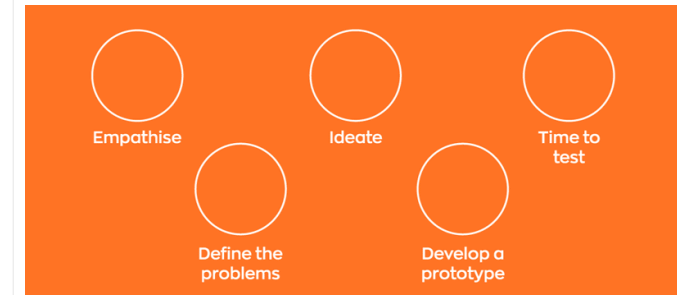
IDEATION TOOLS

- An Introduction to Ideation

**A Counterintuitive Solution to Poverty: Stop Trying to Eradicate It | Efosa Ojomo | TEDxBYU**

What might seem like the obvious signs of fixing poverty - providing resources that poor communities lack such as water wells, schools, and hospitals - often falls short of actually solving poverty and creating a sustainable path to prosperity.

VIEW ON YOUTUBE >



3<sup>rd</sup> July 2024

## Bootcamp

- VUCA
- Wicked Problems
- UNSDGs
- Successful High Performing Teams
- Teaching/Learning Philosophy
- POD Colours
- Course Objectives & Expectations

### Group Project

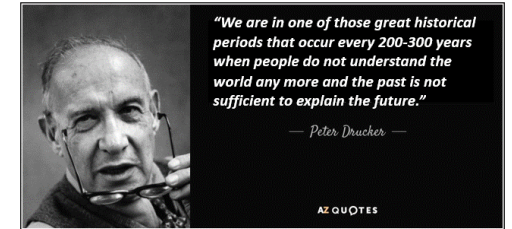
ENM 261 Innovation and Sustainability

## Wicked Problems

SUCCESSFUL  
HIGH PERFORMING  
TEAMS

### Course Objectives

1. Evaluate
2. Synthesise
3. Generate



United Nations  
SUSTAINABLE  
DEVELOPMENT  
GOALS

3<sup>rd</sup> July 2024

# Bootcamp



# Challenge & Change

- VUCA
- Wicked Problems
- PESTLE
- Change
- Types of Innovation

DISCUSSION GROUP QUESTION:

**How are the four elements of VUCA affecting water security?**

DISCUSSION GROUP QUESTION:

**Why is Health a wicked problem? Identify 2 or 3 engineering based solutions.**

DISCUSSION GROUP QUESTION:

**How can technological innovation improve food security?**

DISCUSSION GROUP QUESTION:

**What elements of P-E-S-T-L-E affect inequality and how?**

# Padlet: Challenge & Change

**Health a wicked Problem**

Sujith

**Wicked Problems & Health Care**

Wicked problems are hard to solve due to their social complexity. Health is a wicked problem because of the interconnected factors that affect health and well being. Such factors can also be wicked problems themselves making things even more complex.

Engineering Solutions proposed:  
1. An organ farm to 3-D print necessary organs for transplanting. This is due to the fact that may people don't have access to organs necessary to solve health challenges many hospitals have huge lists of people waiting for a donor for kidney

**Why is health a wicked problem?**

Names:  
Hillary  
Kwamena  
Mohammad  
Daniel  
Jeberson

Health is a topic that is of paramount importance. The lack of well-being of a person can ripple into their inability to perform in other aspects of their lives, which could affect them as well as other people, and the society at large.

Also, it is worth noting that trying to solve a number of health issues give rise to the creation of new problems.

Engineering solutions to healthcare  
1. Electrical Medical Devices, eg. Artificial cardiac pacemaker, blood-glucose meter, etc.: These medical devices have been developed to

**Health as a wicked problem**

Health as a wicked problem. Health is not a problem, rather a state of good wellbeing. The famous saying 'health is wealth' underscores the importance of healthcare in our daily lives. We can practically do nothing without health, and this adversely affects our productivity. Moreover, the challenges of health are never completely solved.

In this piece, we try to highlight some engineering-based solutions to help address the global health challenges we currently face.

1. Remote Healthcare Facilities: Introduction of remote healthcare facilities will be a good solution to healthcare

**Health Wicked Problems**

Health as a wicked problem. It is a complex problem that has no solution. As per my to solve a problem, another arises. eg. The problem solution is how about 'They are related to technology like'.

A goal example is **OBESITY**. Obesity is an ailment of being relatively too fat. It is caused by too much eating and less physical activity.

**ENGINEERING SOLUTIONS**

1. **APP DESIGN**

2. **UTILISE 3D TECHNOLOGY FOR HUMAN PROBLEMS**

3. **GENETIC MODIFICATION**

**Group 5**

TEAM 5

**Group 6**

THANK YOU

**Group 7**

Group 7:  
Other Elements under Economic include **exchange rates** which can influence investments and capital flows negatively and positively

**Group 8**

**GROUP 9**

**Group 10**

GROUP 10

**Discussion 1**

Water security is the capacity to produce enough water of sufficient quality for survival and to carry out different productive activities.

**VOLATILITY:** We live in an unstable world where there is constant changes.

**Climate change:** directly affects the sea level, it also affects the aquatic life. Also disasters like extreme heat affects the availability of water to certain regions for example the recent heat wave in Hawaii.

**UNCERTAINTY:** Lack of adequate information.

**Economic Development:** Technological advancement could lead to unsafe discharge that affects water.

**Spillage:** It affects water in regions with contaminated water feel the effect.

**COMPLEXITY:**

**GEO POLITICS:** Inability to reach an agreement by countries and organization in reaching safe conclusions in water management.

**AMBIGUITY:** Unclear information or lack of adequate information.

**LACK OF RELIABLE DATA:** Water source conditions as well as water consumption in relation to safe produced water is a major problem.

**VUCA & Water Security**

THE IMPORTANCE OF WATER?  
- NO LIFE WITHOUT WATER  
- AGRICULTURE, HEALTH, ECONOMY, FOOD

CHALLENGES

- RELATIONSHIP BETWEEN URBANIZATION, CLIMATE CHANGE, INEQUALITY, POVERTY, SECURITY
- URBANIZATION
- INEQUALITY
- POVERTY, SECURITY

3. WICKED PROBLEM

4.

Presentation

Importance of Water: water is an essential part of human, it is not only essential to health but impacts agriculture, poverty reduction, environment conservation and education

As at 2022 2.2 billion people lacked safely managed drinking water

Challenges currently affecting water security:

1. climate change
2. Population growth
3. Urbanization - economic growth
4. Relationship between countries
5. Poverty
6. Inequality ( Lack of Developed technology)
7. Lack of natural resources

**4 Elements of VUCA affecting water security.**

**VOLATILITY:**

- Environmental Pollution
- Uncertainty
- Climate Change

**COMPLEX**

- Population Growth

**AMBIGUITY**

- Lack of Good Infrastructure

Water supply is an important constituent of life as all lives depend on water. For that reason, it is well captured as no. 6 of the 17 goals of the United Nations Sustainable Development Goals.

The VUCA factors affecting the water security are briefly discussed as follows:

**-Volatility**

1. Environmental Pollution: The improper disposal of environmental waste causes pollution of water bodies leading to a problem of water security.



## UNSDGs

### Sustainable Development Goals:

- 17 GOALS, 169 TARGETS, 244 INDICATORS
- Universal, Indivisible, Transformative
- 5 Pillars: Planet, People, Prosperity, Peace, Partnership
- 3 Dimensions: Economic growth, Environmental protection, Social inclusion



### Group Discussion Task:

- Take a wider approach to “defining the problem” when considering engineering solutions.
- All groups will consider UNSDG challenge UNSDG 7 (Affordable and Clean Energy)
- Each group will also consider a second assigned UNSDG to fully explore the interconnectedness and ‘wicked’ nature of the problems.

### ALL Groups Goal 7 + second below

| Group | 2nd Goal |
|-------|----------|
| 1     | 5        |
| 2     | 11       |
| 3     | 17       |
| 4     | 14       |
| 5     | 16       |
| 6     | 4        |

| Group | 2nd Goal |
|-------|----------|
| 7     | 13       |
| 8     | 8        |
| 9     | 15       |
| 10    | 1        |
| 11    | 9        |
| 12    | 12       |

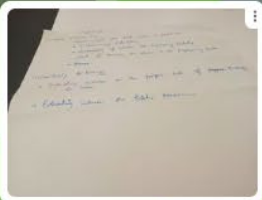
**Call to Action**  
**Leave No One Behind**

**3<sup>rd</sup> July 2024**

# Padlet: UNSDGs

**Protected characteristics**

age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation.



**GROUP 11**

UNSDG 7 | UNSDG 13

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

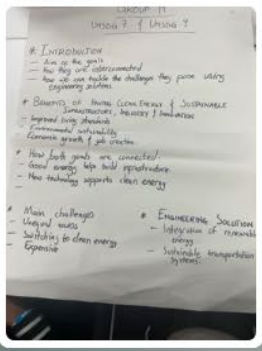
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Group 8**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

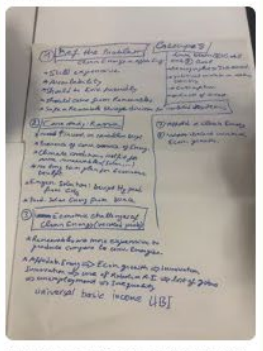
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Group Six**

**Group Six Case**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

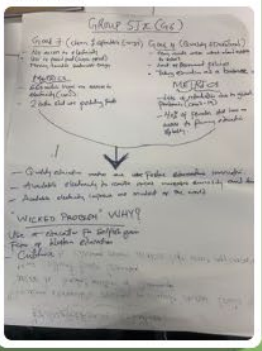
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Group 6**

**Engineering Solution**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

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- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

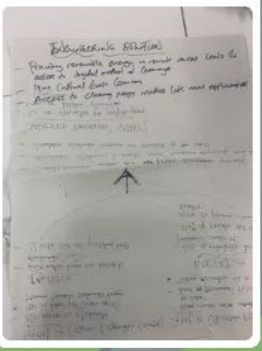
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Group 2: UNSDGs 7 and 11**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

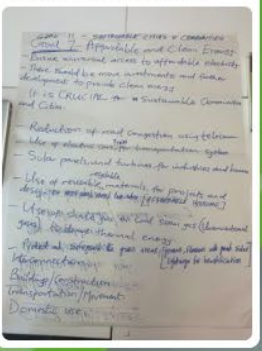
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**GROUP 9: UNSDGs 7 and 15**

**Goal 7: Affordable and Clean Energy**

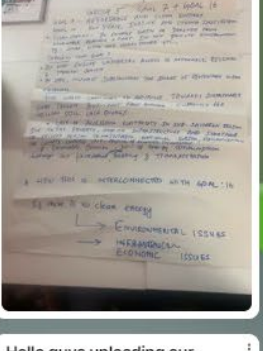
**Goal 15: Life on Land**

- 1) SOLAR ENERGY
- 2) BIOGAS
- 3) ELECTRIC VEHICLES
- 4) BIOFUEL PRODUCTION
- 5) AFFORDABILITY

**RECOMMENDATIONS**

**RECOMMENDATION BARRIERS**

**RECOMMENDATIONS**



**GROUP 10**

**GROUP 10**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**


- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

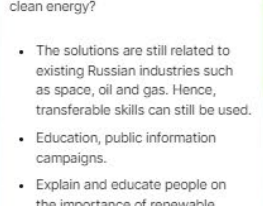
**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**How are we going to convince Russian government or people to support clean energy?**

- The solutions are still related to existing Russian industries such as space, oil and gas. Hence, transferable skills can still be used.
- Education, public information campaigns.
- Explain and educate people on the importance of renewable energy.



**GROUP 10**

**GROUP 10**

**\* Introduction**

- Aim of the goal
- How they are interconnected
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**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**


- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**GROUP 10**

**GROUP 10**

**\* Introduction**

- Aim of the goal
- How they are interconnected
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**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

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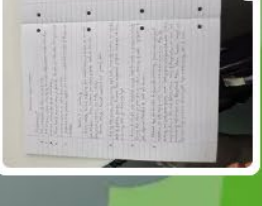
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Group 3**

**Group 3**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**


- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**Hello guys uploading our groups presentation. Group 12**

**GROUP 12**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**

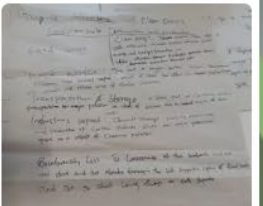
- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



**GROUP 7 PRESENTATION**

**GROUP 7 PRESENTATION**

**\* Introduction**

- Aim of the goal
- How they are interconnected
- How we can tackle the challenge they pose using engineering skills

**\* Benefits of Home Clean Energy & Sustainable Structures, Industry & Innovation**

- Improved living standards
- Economic stability
- Economic growth & job creation

**\* How both goals are connected**


- Clean energy helps tackle environmental issues
- New technology supports clean energy

**\* Main challenges**

- High up front costs
- Limited availability of clean energy
- Expensive

**\* ENGINEERING SOLUTIONS**

- Integration of renewable energy
- Sustainable transportation systems



If anyone has any questions please do let us know

## Design Thinking

- Models/Approaches
- Divergent & Convergent Thinking
- Solutions: Desirability, Feasibility, Viability
- Value Proposition
- Empathy Tools
- Ideation Tools

### Part 2: IDEATION SPRINT – the DIVERGENT PHASE

09:15 – 10:00 Create a storyboard for the problem (similar to customer journey map)

10:00 – 10:45 Crazy 8s / 6 thinking hats / Worst possible idea

10:45 – 11:00 comfort break

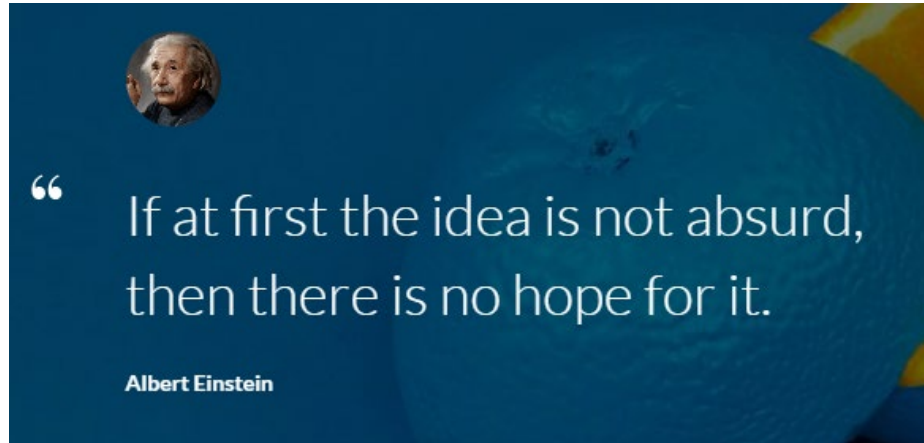
11:00 – 11:45 SCAMPER – apply one of the SCAMPER lenses to develop your group ideas

### Part 3: IDEA SELECTION – the CONVERGENT PHASE

11:45 – 12:30 From all the ideas you have created select one that you COULD take to the next stage (prototyping)

### Part 4: Group Presentation

12:30 – 13:00 Groups to create and record a 5-minute presentation that creates a clear and succinct picture of their selected idea and how it addresses the challenge



# Padlet: Design Thinking

**Group 2: UNSDG 11**  
 Video • 05:00  
 Innovation Flying cars  
 Traffic congestion is a problem that plagues our cities, even contributing to higher carbon emissions. Imagine if you could beat the traffic by flying over it. Well, you don't have to imagine anymore. It's already happening! What's more? It's electric!

**Group 4**  
 Video • 02:38  
 VID-20231013-WA0009  
 Hello Everyone  
 Here we are talking about the challenge encountered of interconnecting UNSDG 7 Affordable /Clean Energy and Life Below Water, it's solution and positive impact on the environment.

**Group 5**  
 Video • 05:20  
 1be77ad5-e7b2-4e90-b423-94f57608eb9d  
 Clean and affordable energy which is interconnected with Peace, Justice and Strong Institutions  
 (Karpagam, Jolomi and Safwan)

**Group 6 Video**  
 Video • 04:57  
 WhatsApp Video 2023-10-13 at 13.31.17  
 Good Day all !!  
 Find attached our video presentation with our idea and solution towards tackling UNSDG 7 - Clean and Affordable Energy and UNSDG 4 - Quality Education. Our major challenge was the application of renewable energy towards providing quality education to people living in remote areas of the world

**GROUP 7**  
 Video • 05:18  
 1697406669011905  
 After numerous consideration and deep thought, group 7 team brought an innovative idea that would go a long way in solving the issue of clean and affordable energy and climate action

**Group 8**  
 Affordable Energy & Economy Growth  
 Video • 06:04  
 Group 8 presentation

**Group 9**  
 Video • 03:02  
 VID-20231013-WA0008  
 Hi Guys!  
 Please find attached a clip of solution proposed by our team to solve the problems of UNSDG 7 (Clean and Affordable Energy) and UNSDG 15 (Life on land).

**GROUP 10**  
 Video  
 20231018\_074805  
 How UNSDG 7 (Affordable And Clean Energy) Is Interconnected To UNSDG 1 (No Poverty)

**Group 11**  
 Video • 03:14  
 Clips23 10 15 04 12 2 2  
 Group 11 focuses on the UNSDG 7 & 9 that is affordable and clean energy for all whiles building resilient infrastructure fostering sustainable industrialization and innovation. We looked at the challenges and proposed solutions .

**GROUP 12 VIDEO**  
 Video • 04:30  
 VID-20231013-WA0001  
 Hello everyone :)  
 We just uploaded our group video please do have a look. Its about UNSDG Goal on Responsible Consumption and Production with highlighting Supply Chain Traceability and its solutions to a better society.  
 Thank you :)

**Group Ideas/Decisions** + ...

**Group Notes on Discussion 4: How can technological innovation improve Food Security?** + ...

**Group 12 Decision**

**Group Six Top 5 Ideas**

**Group 4**

**Group 8 discussion**

**Group 5: GOAL 7 and 16**

**Group 2**

**Group 2**

**Group 3**

**Group 4**  
 GROUP 4:  
 Food security can be improved through the following:  
 → Hydroponics (Soilless farming)  
 → Ocean Platform based farming  
 → Genetic Modification of seeds

**Group 4**  
 GROUP 4:  
 Food security can be improved through the following:  
 → Hydroponics (Soilless farming)  
 → Ocean Platform based farming  
 → Genetic Modification of seeds

**Group 5**  
 FOOD SECURITY TEAM'S  
 → REDUCE CARBON FOOTPRINT  
 → USE AI, SOIL SENSORS, DRONES, AND SATELLITES TO MONITOR CROPS AND PESTS  
 → GENETICALLY MODIFIED CROPS  
 → IMPROVE WATER EFFICIENCY THROUGH DROPPED IRRIGATION AND SMART FARMING TECHNIQUES

# Student Voice Module Feedback

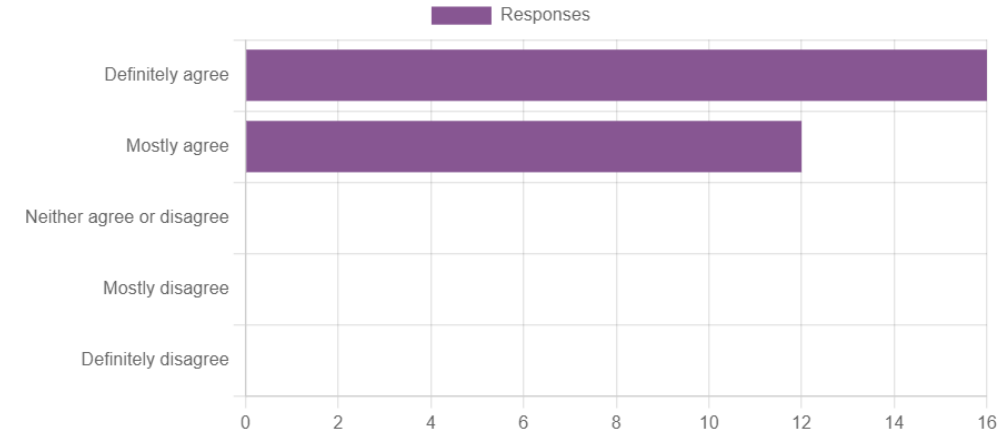
## Areas of commendation:

- “The activities have been set up in such a way that all of us students are highly involved and making sure that the way we think is reshaped.”
- “The module delivery is engaging, entertaining, stimulating and captivating. All the lecturers (Chris, Sally, Ibiye and Ruissein) are supportive and friendly.”
- “I believe this module has been beneficial in enhancing various personal and interpersonal skills.”

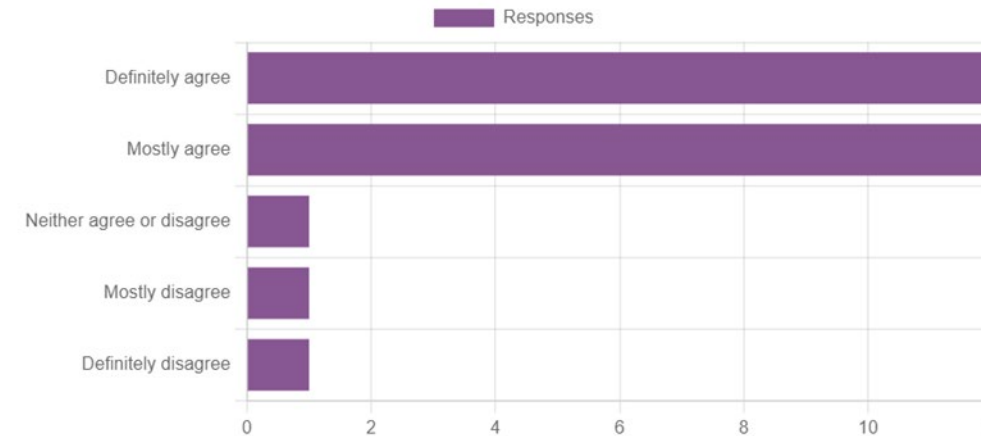
## Areas for improvement:

- “More examples.”
- “I don’t understand the value of this course for my specialization at all.”

I feel involved and engaged in my learning on this module



The module content is intellectually stimulating and delivered effectively



## Project Teams

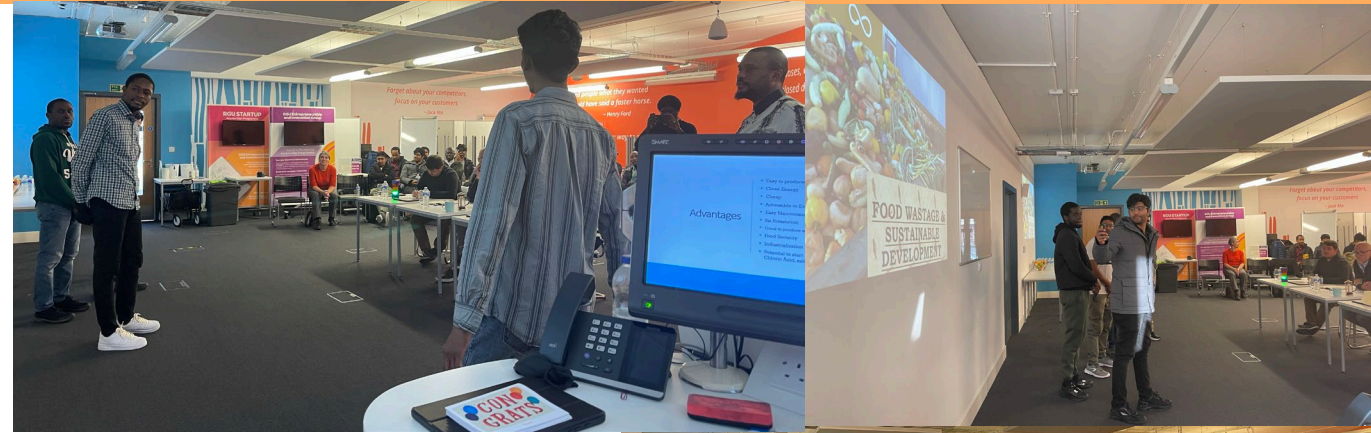
| PT       | Gender    | Engineering Courses                               | Selected UNSDG(s)  | Engineering Solution Idea  |
|----------|-----------|---|--|--|
| <b>K</b> | 0 F :6 M  | 4 Oil & Gas; 1 Drilling & Well; 1 Eng. Management | Goal 12: Responsible Consumption and Production                                    | Implementation of new plastic sorting technology can replace hard human job and ensure an efficient process of recycling plastic wastes.   |
| <b>J</b> | 1 F: 4 M  | 4 Oil & Gas; 1 Drilling & Well                    | Goal 12: Responsible Consumption and Production                                    | Smart tag: Continuous monitoring of food quality across the entire supply chain to enhance consumer awareness regarding the quality of food.                                     |
| <b>M</b> | 1 F: 5 M  | 4 Oil & Gas; 1 Drilling & Well; 1 Eng. Management | Goal 7: Affordable & Clean Energy; Goal 9: Industry, Innovation and Infrastructure | Production of environmentally friendly lithium-sulphur batteries to reduce energy cost, provide reliable power source, improve the quality of lives and reduce carbon emissions. |
| <b>G</b> | 1 F : 5 M | 3 Drilling & Well; 3 Eng. Management              | Goal 14: Life Below Water  | Robot with a hydrocyclone, as a solution to oil spills.  |

**3<sup>rd</sup> July 2024**

## Project Teams

| PT | Gender    | Engineering Courses                               | Selected UNSDG(s)   | Engineering Solution Idea  |
|----|-----------|---|---|--|
| I  | 0 F: 5 M  | 4 Oil & Gas; 1 Drilling & Well                    | Goal 6: Clean Water & Sanitisation                            | Clean water solution through the implementation of solar water evaporators which use green, easy and affordable energy and technology.                           |
| M  | 2 F : 4 M | 4 Oil & Gas; 1 Drilling & Well; 1 Eng. Management | Goal 7: Clean & Affordable Energy;<br>Goal 13: Climate Action | Waste to energy to reduce climate action, reduce mortality rate, clean energy generation, circular economy, land cleaning, and waste management culture.         |
| L  | 2 F : 4 M | 4 Oil & Gas; 2 Drilling & Well                    | Goal 7: Clean & Affordable Energy;<br>Goal 13: Climate Action | IDAN jacket: Absorbs the body heat from the temperature differentials between the body and the environment to provide a continuous source of energy for devices. |

## Presentation Showcase





# Module Takeaways

Students worked on a group project to identify solutions for one or more of the UNSDGs.

- **Skills development:** Engagement strategies with stakeholders, human-centred, problem-solving, ideas creation, project planning and collaboration, and strategic communication of ideas.
- **Evaluate complexity:** Apply critical analysis, evaluation and synthesis to forefront issues informed by developments in the discipline and society. Deal with complex issues and make informed judgements in situations in the absence of complete or consistent data.
- **Synthesise concepts:** Identify, conceptualise, and define new and abstract problems and issues.
- **Generate engineering ideas:** Develop original and creative responses to problems and issues.

**3<sup>rd</sup> July 2024**

**Thank you for listening!**