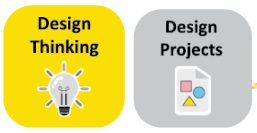
4.0 **Module 4**

Design Project: with focus on Observation, Problem Identification and Empathy

27 hours (18 in school and 9 at home)



Exposure 1	- Introduction to Design Thinking Process for communication Design
Exposure 2	- Introduction to making a process/ time/journey Map
Exposure 3	- Fundamentals of effective Presentation Techniques
Task 4.1 (at School + Home)	- Analysis of the Problem to be solved
Task 4.2 (at School + Home)	- Mapping – Mind-map and Life Cycle Map
Task 4.3 (at School + Home)	- Ideation and Creative Alternatives
Task 4.3 (at School + Home)	- Design Solution Prototyping
Task 4.4 (at School + Home)	- Make a presentation of your Solutions
Final Output	+ Reflections, Self Assessment and References

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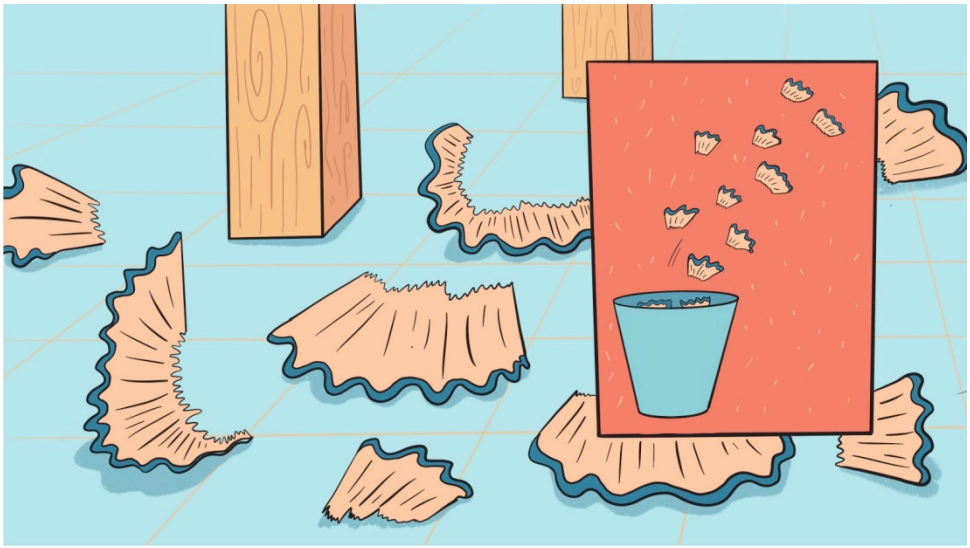


Introduction

In this module the students make use of the design thinking process to solve a Design problem. The aim is to be able to study and understand the problem space so that it can be further analyzed resulting in possible creative solution to the identified problems.

Aim of this Module

The aim of this module is to let students follow the first stages of the Design Thinking process and be able to use it in solving a problem located in their School Environment. The students should get the confidence to be able to identify problems, understand user requirements, study existing knowledge on the subject, suggest creative alternatives and be able to present this at the end of the module.

Place:

Place: Task 4.1, 4.2, 4.3, 4.4, and 4.5 done at School and at home

Grouping:

Grouping: Class tasks are done in groups of 3-4 and Home tasks are individually

Equipment:	**Equipment:** Sketchbooks for sketching and taking notes. Students may use digital devices like computers or tablets to collate information and make presentations (if available, but not necessary)
Exposures	**Exposure1:** Introduction to Design Thinking Process **Exposure 2:** Introduction to making a Process/ Time/Journey Map **Exposure 3:** Fundamentals of Effective Presentation Techniques
Design Thinking & Innovation Process involvement:	This task involves the following phases of the DT&I Process: Phase 1. Observe/Empathise/Research (Observation and Study of Problem Space) Phase 2. Understand/Analyse/Define (Fundamentals and Principles of Analysing Information) Phase 3. Ideate/Alternate/Create (trying Creative Alternatives) Phase 4. Build/Prototype/Detail (making Mock-ups and seeking Feedback) Phase 5. Evaluate/Reflect/Implement (Summary and Presentation)
Mapping SDG Goals:	The following SDG goals need to be considered while solving this task. While documenting elements and expressions, do think of gender equality and reduced inequalities and concern for life on our planet.

Task 4:

Task 4 = 4.1 + 4.2 + 4.3 +4.4 + 4.5
School Hours: 20, Home hours: 12

Task 4.

Overall Task (Task 4.1 + Task 4.2 + Task 4.3):

Task Topic:

Waste in School environment (continue with this topic)

In your previous classes you have investigated, documented and prioritized **how all the waste generated in the school is disposed-off or converted to something useful**.
You'll re-look at this problem area, analyze the research + data collected and derive inferences from it and spot opportunities for design
The students work in groups of 2-3 and each group works on a different part of the problem space - users, places, products, communication methods, etc.

Task 4.1

Task 4.1
School Hours: 2 and Home hours 1

Task Title:

Analysis of the problem to be solved:

1. Analyse the problems using sticky notes to classify and categorise them into buckets of problems to be solved
2. Make a list of them according to priority and write them down on sticky notes with priority numbers

Output 4.1: Make a list of the problems according to priority

Task 4.2

Task 4.2
School Hours: 2 and Home hours 1
Done in groups of 3-4 at School and individually at Home

Topic title:

Make (a) Mind map of the problem space and (b) Life Cycle Process Map of one of the Waste materials:

Task A can be done in school and Task B at home
1. Make a mind map of the different categories and sub-categories of the problem space
2. Make a Life Cycle Process map of the Waste materials in the school – step by step process of how the material comes into being and what becomes of it as waste

Output 4.2: Make a sequence map of the activities mapping it on the space available on the mobile vehicle

Task 4.3

Task 4.3
School hours: 6 and Home hours: 3
Done in groups of 3-4 at School and individually at Home

Topic title:

Design Solution Possibilities and Ideation

1. Ideate on possible solutions by sketching these
2. The solutions could involve the following medias or outputs as possibilities:
a. Poster campaign to create awareness
b. An illustrated storybook on the subject to create awareness
c. A simple card or board game to create awareness
d. Identity for the Waste System to make it easily noticeable & identifiable
e. Redesign of the packaging for Waste handling
f. Redesign of the containers for storing and transporting waste
3. Ideate at least 3 alternative solutions and short-list them according to their effectiveness and ease of implementation
Output 4.3: Make a presentation of these in 3-6 slides (alternate sketches + short-listed idea)

Task 4.4

Task 4.4
School hours: 6 and Home hours: 3
Done in groups of 3-4 at School and individually at Home

Topic title:

Design Solution Prototyping

1. Select the best one out of your ideation and finalise it with details.
2. The final concept could involve any of the following:
- 2D/3D design Sketches + Physical Prototyping + Visualisation + 3D Models
3. Make a mock-up of your final idea – a scaled version.
4. Show the mock-up to potential users and get feedback
5. Incorporate suggestions from the feedback in your design
6. Make the final prototype
Output 4.4: Make a presentation of these in 3-6 slides (mock-up + feedback + details)

Task 4.5

Task 4.5
School hours: 4 and Home hours: 2
Done in groups of 3-4 at School and individually at Home

Topic title:

Design Solution Final Presentation and Documentation

- Select the best one out of your ideation and
Presentation Details of points mentioned above:
Task 1: Prepare a presentation (of 6-8 minutes duration) to include all the stages of your project:
a. Title of the System Design Project or Problem Statement
b. Team members
c. Summary/content listing of your presentation
d. Insights from Primary and Secondary Research

e. Major design opportunities
f. Restatement of the problem / Design Objectives / Design Goals
g. Alternate Concepts (sketches + quick scenarios + concept models)
h. Final Concept and its unique features
i. Process, Form or Interface development and detailing
j. Prototype /Mock-up (optional)
k. User feedback on your final solution
l. Future steps and suggestions
m. Full References (Learn how to do references)
n. Acknowledgments – to all who have helped

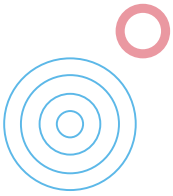
Output 4.5: A presentation (6-8 minutes – roughly 15 to 25 slides) explaining the Project outcome along with Process

Reflection:

Questions to ponder:

- Do you feel you can use the first phase of the Design Thinking process in trying to identify other problems to be solved?
- Can you apply what you learnt by solving design problems starting at your home or neighbourhood?
- Will you share this information on the use of the Design Thinking Process with others – like your friends and cousins?

Self Assessment:



Assessment Criteria (Task 4.1 + 4.2 + 4.3 + 4.4) - Assess yourself:

- Analysis of the design problem was done well with proper categorisation and assigning priorities. (Group + individual task)

☐ *Beginning* ☐ *Developing* ☐ *Promising* ☐ *Proficient* ☐ *Excellent*

- Making of the Mind-map as well as the Lifecycle Process map was done well. (Group + individual task)

☐ *Beginning* ☐ *Developing* ☐ *Promising* ☐ *Proficient* ☐ *Excellent*

- Came out with creative innovative several alternate ideas along with sketches (Group + individual task)

☐ *Beginning* ☐ *Developing* ☐ *Promising* ☐ *Proficient* ☐ *Excellent*

- The mock-up of the prototype of the final concept was done well +incorporating feedback from the users (Group + individual task)

☐ *Beginning* ☐ *Developing* ☐ *Promising* ☐ *Proficient* ☐ *Excellent*

- The final presentation showing the design process and the final solution was done well (Group + individual task)

☐ *Beginning* ☐ *Developing* ☐ *Promising* ☐ *Proficient* ☐ *Excellent*

Other References:

Other suggested References:

1. Design Thinking Process - explained with an example: https://www.youtube.com/watch?v=uRtAzzitBmA
2. Design Thinking Framework - a short video: https://www.youtube.com/watch?v=LhQWrHQwYTk