8.0 **Module 8**

Design Project with focus on Products and focus on Problem Analysis and Mappings

27 hours (18 in school and 9 at home)

Exposure 1	**Exposure1:** Introduction to Design Thinking process and how to apply it
Exposure 2	**Exposure 2:** Details of Problem Analysis – Observations,
Exposure 3	Inferences/Insights and Design Recommendations/Opportunities **Exposure 3:** Mappings and Visualisation of Problem Space
Overall Task	**Problem Analysis and Mappings**
Task 8.1 (at School + Home)	- Redefining the problem to be solved:
Task 8.2 (at School + Home)	- List of materials and processes
Task 8.3 (at School + Home)	- Design Solution Possibilities and Ideation
Task 8.4 (at School + Home)	- Design Solution Prototyping
Task 8.5 (at School) **and Final Output**	- Design Solution Final Presentation and Documentation + Reflections, Self Assessment and References

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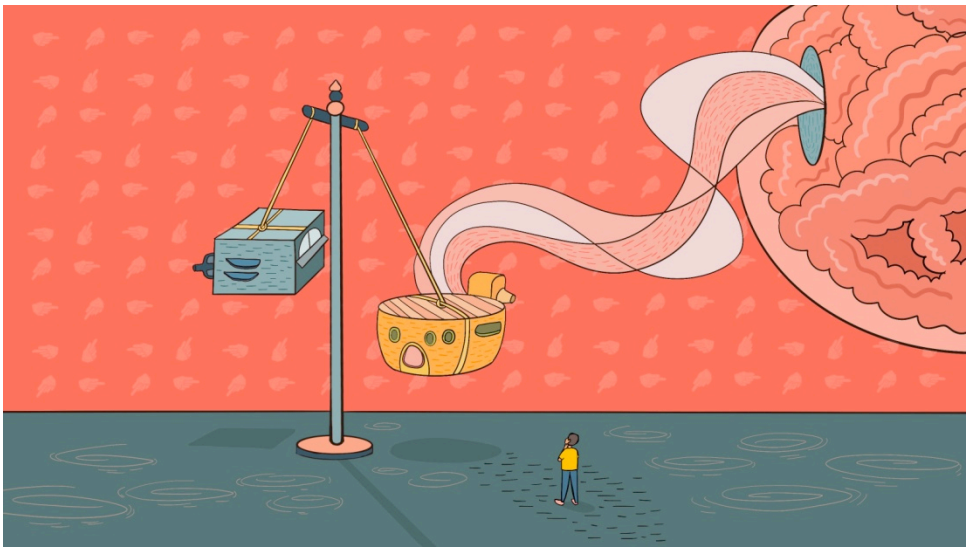
Design Project with focus on Products and emphasis on Problem Analysis and Mappings

(18 hours at school + 9 hours at home)



Introduction

In this module, redesign of an object in the primary classroom is taken as a task to understand its importance in the design process.
The students are encouraged to make use of their learning from the previous modules on Sketching for Ideation and Fundamentals of 3D to solve this problem.

Aim of this Module

The aim of this module is to make students understand the importance of understanding and analysis of a problem as part of the design process in solving and finding an appropriate innovative solution.

The students will make use of classifying observations, seeking inferences and insights, methods of mapping this information, making recommendations and locating opportunities for design in order to ideate and come out with solutions.

Place:

Place: Task 8.1, 8.2, 8.3, 8.4, and 8.5 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 and how to apply it
Exposure 2: Details of Problem Analysis – Observations, Inferences/Insights and Design Recommendations/Opportunities
Expsoure 3: Mappings and Visualisation of Problem Space

Design Thinking & Innovation Process involvement:

This task involves the following phases of the DT&I Process:
Phase 1. Observe/Empathise/Research (Primary and Secondary Research)
Phase 2. Understand/Analyse/Define (Analysis of Findings)
Phase 3. Ideate/Alternate/Create (trying creative alternatives)
Phase 4. Build/Prototype/Detail (making the prototype and the presentation)
Phase 5. Evaluate/Reflect/Implement (feedback from others)

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 8:

Task 8 = 8.1 + 8.2 + 8.3 + 8.4
School Hours: 12, Home hours: 6

Task 8.1:

Task 8.1
School Hours: 2
Done in groups of 3-4 at School

Task Topic:

Redefining the Problem to be Solved: Re-design of Objects in Primary Classrooms

You have already done the analysis of the problem in the previous Module.
1. Redefine your problem statement after the inputs from analysis. The problem statement could be more specific with further details.
Output 8.1: Redefinition of the Problem Statement

Task 8.2:

Task 8.2
Home Hours: 2, done individually

Task Topic:

Make a list of materials and processes used

Task a can be done in school and Task b at home

1. Make a list of existing objects in the classroom.
2. Chose the one that your group would like to redesign
3. Make a list of all the different materials used for the object
4. Make a list of processes that are required to make the object
5. Discuss if the change of materials (towards being more sustainable?) and the method of making it could make the object better
Output 8.2: List of Materials and processes used for the Object

Task 8.3:

Task 8.3
School hours: 6 and Home hours: 2
Done in groups of 3-4 at School and individually at Home

Topic title:

Ideation on Creative Innovative Design Solution Possibilities + Shortlisting of Ideas

- Ideate on possible solutions by sketching these
1. Your group could brainstorm, Ideate on possible creative innovative solutions and sketch these out + number or name these ideas

2. Collate all the good ideas together and short-list them according to their product effectiveness and ease of implementation

Output 8.3: Make a presentation of these in 3 slides (alternate concept sketches + short-listed idea)

Task 8.4:

Task 8.4

School hours: 6 and Home hours: 2

Done in groups of 3-4 at School and individually at Home

Topic title:

Design Solution Mock-ups + 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. Detail out the final selected solution: the details could be about its layout, form, colours, material selection, listing of advantages/disadvantages and how to produce.
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 8.4: Make a presentation of these in 3 slides (mock-up + feedback + details)

Task 8.5:

Task 8.5

School hours: 4 and Home hours: 2

Done in groups of 3-4 at School and individually at Home

Topic title:

Final Presentation and Documentation

Prepare a presentation (of 6-8 minutes duration) to include all the stages of your project:

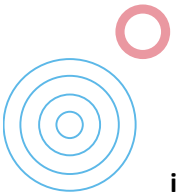
a. Title of the Design Project or Problem Statement
b. Team members
c. Summary/content listing of your presentation
d. Insights from Primary and Secondary Research
e. Major design opportunities
f. Restatement of the problem / Design Objectives / Design Goals
g. Alternate Concepts (sketches + quick scenarios + concept models)
h. Final Concept and its unique features
i. Process, Form or Interface development and detailing
j. Prototype /Mock-up
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 8.5: A presentation (6-8 minutes, roughly 15 to 25 slides) explaining the Project outcome along with Process

Reflection:

Questions to ponder:
- What are the most interesting methods of the Design Thinking process that you found useful in solving the above problem?
- Can you apply what you learnt by redesigning products and artifacts around your home and neighbourhood to make them better?
- Will you collaborate and make use of the Design Thinking Process with others – like your friends and cousins to solve problems?

Assessment:



Assessment Criteria (Task 4a + 4b + 4c + 4d) - Assess yourself:

- Redefines a specific, appropriate and well-framed problem statement with inputs from analysis of previous Module (Group task)

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

- Makes an appropriate List of Materials and processes used for the selected Object (Individual task)

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

- Comes 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 business model, 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