

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
(GTU)



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A  
Project Report  
on

**(TOPIC)**

prepared as a part of the requirements for the subject of

**DESIGN ENGINEERING – I b**

B. E. II, Semester – IV

(XXXXXX Branch)

Submitted by:  
Group:

Sr.      Name of student      Enrollment No. 1 2 3 4

CCCC DDDD EEEE  
(Faculty Guide)

AAAA BBBB CCCC  
Head of the Department

Academic year  
(2014-2015)

## Common Instructions:

- 1) There is no need to repeat / rewrite questions given below in your report document.
- 2) All questions are to be attempted to best describe your thinking approaches.
- 3) Questions may be answered in paragraph form. Avoid bullet unless to mention very specifically something.
- 4) There are no page limit/ word limit for the answer, may be you can put in brief/ detail to best of your discretion.
- 5) You can also use pictures (in part or full size) of your canvas. Kindly make sure you reduce the using compression (Format tab at top) with a resolution of 200 dpi. Teams can add picture of any part of canvases to explain particular thing in the report.
- 6) There is no need to write these instructions in report.
- 7) Sections/Contents are illustrative here. Students and faculty guide may decide their best way to express the design thinking approach with respect to their project in the report.
- 8) At the end of the report each team is supposed to add the full image of each canvas.
- 9) The report book can be spiral bound and team can keep one copy with them and they can give a copy to the department for record.
- 10) GTU will provide a web link where each team in each branch can register and upload the soft copy of the report including image of each canvas later on.
- 11) After examination teams may keep the canvases for their further reference or submit to the department. So students group or department need to retain all framework, canvases and report for future use. External examiner may ask groups to show their previous work related to Design Engineering.
- 12) Teams will have to show the physical canvases to the department/examiner during the practical examination and explain briefly.

## Contents:

### 1. Introduction to concept/ idea

Give a name to your team. Write in brief about every team members, guide and mentors with their photos if possible. Elaborate what you know about design thinking (50 words). You can study, analyse and share in your own words. Also introduce your domain/project briefly.

### 2. Phase 1 : Evaluation of Idea

#### A. Observation Record sheets (AEIOU Framework)

- 1) You need to describe your journey of gathering data through observation using AEIOU framework in the context of your project.
- 2) Describe each 5 types of framework in details.
- 3) You may include notes, photographs, video, and interview and so on to elaborate your AEIOU framework in the context of your project.

B. Literature review / Prior Art Search : Through this one team need to do thorough literature review about the existing solutions, innovations related to the project/problem which they have picked up and see how they can develop better solution using design thinking approach.

#### C. Modifications to be made in the canvases after observation exercise

- If group is working on same project/domain/source from which problem is scouted as 3<sup>rd</sup> semester then after observation you need to modify all canvases (Empathy, Ideation, Product Development) based in inputs.
- If group has selected new project/domain/ source from which problem is scouted in 4<sup>th</sup> semester then you need to make all canvases again

#### **Empathy Mapping /framework**

- 1) What domain area or pre requisite did you start with empathy campus?
- 2) Who was the Selected User? Who were the stakeholders? (snapshot of user and stakeholder section from the canvas)
- 3) Enlist all the activities of the user and stakeholder doing from AEIOU framework and write briefly about all of them. (snapshot of activities section in the canvas)
- 4) Mention the stories mentioned in the canvas in 100 words each. Your story must be based on observation only and for that you may require to observe your domain again and again.
- 5) Insert a picture of entire canvas of empathy mapping.
- 6) Write 5 points about your conclusion from the empathy canvas.

#### **Ideation Canvas /framework**

- 1) Mention the set of People in ideation canvas. (You may mention about new persons introduced in addition to Empathy canvas)(with snapshot of the section)
- 2) List down every single activity mentioned in the canvas people-wise. (with snapshot of the section)
- 3) List down various situation locations and contexts in the canvas and explain each of them in brief. (with snapshot)
- 4) Mention all the props included in your canvas and highlight the props you actually used in the problem identification.
- 5) Explain in 250 words various iterations tried with the ideation canvas. Mention atleast 5 iterations and explain all of them. List down atleast 10 problems you figured out while analysing the ideation canvas.
- 6) Insert a picture of entire canvas of ideation.

### **Product Development Canvas /framework**

- 1) Mention with snapshots all the sections of the product development canvas and explain all of them in detail.
- 2) Explain in detail the customer validation you did with your customer.
- 3) Write in about 100 words about your product solution with its functions, features and components.
- 4) Explain the customer revalidation and the reject, retain and redesign components in detail.
- 5) Mention the redesigned features and components in detail.
- 6) Write down in 100 words about your final product solution.

### **3. Phase 2 : Pre-Design**

- Pre-design calculation which decides size / shape / material requirement / manufacturing process / design specifications/applicable standards for converting idea in the first prototype
- Summary on validation process and refinement in the first-prototype
- Learning Needs Matrix (LNM) - Summary on learning needs by students in the 4th Semester - Elaborate your learning requirement for complete your project independently - Allocation of preparing learning requirement among the members of the group
- Mention which feature/function or similar things of your proposed solution can still be improved.

- Mention what challenges you see while implementing your idea into prototype and how they may be overcome.

#### **4. Fast-Prototype model / Conceptual Plan-Layout for process related branches**

- This phase converts your idea into physical model to help you further think on your product/system/process
- List down materials you have used to prepare your model/layout.
- Create a minimum viable proof of concept of the proposed final solution with basic raw materials available
- In case of algorithm/flow/process one can develop mock prototype or similar as possible.

#### **5. For teams who have developed some proof of concepts/Prototypes**

Each team having developed a proof of concept /prototype of their project while solving a challenge has to make a short film (3-5 minutes explaining their project covering, exact challenge which they are trying to solve, what idea they implemented and what are the limitations which can still be improved related to the innovation).

Such teams may refer similar practices at below given link based on experiments at IIT Delhi.

[https://www.youtube.com/results?search\\_query=MEP+101](https://www.youtube.com/results?search_query=MEP+101)

Each student team, which has developed a prototype of their 4<sup>th</sup> Semester DE-1 (b) project, should make a video as above and add that in YouTube and share the you tube link with their faculty guide. The URL of the YouTube link of their video should also be put in the Report.

Each college should collect these teams' details (who are team members, their registration number, and title of project) along with you tube video link in a spreadsheet and share with GTU Design Engineering team by mailing the list at [design@gtu.edu.in](mailto:design@gtu.edu.in) .

GTU design team will create a playlist combining all these video links and share in you tube so that many can refer them and help taking the ideas to next level when ever needed.

N.B # 5 is only for those teams who have developed some concrete prototypes based of their innovation/project as a part of their course DE1-(b). Such teams need to be given weightage for their efforts while taking final examination by both internal and external examiners.