

Prototyping Interactive Systems DES

206

Lecture 1

09-01-2024



INDRAPRASTHA INSTITUTE *of*
INFORMATION TECHNOLOGY
DELHI

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Outline – Topics to be covered



● WHY PROTOTYPE

- Importance in Design Thinking Process
- The Try, Fail, Try Again, Succeed Loop

● WHAT IS PROTOTYPING

- Prototyping Methods
- Types of Prototypes
- Glimpse of equipment available in DI Lab and ECE Lab at IIIT Delhi

● HOW TO PROTOTYPE

- Getting started with some prototyping methods
- Learning to pick suitable prototyping process for a design

Course Details



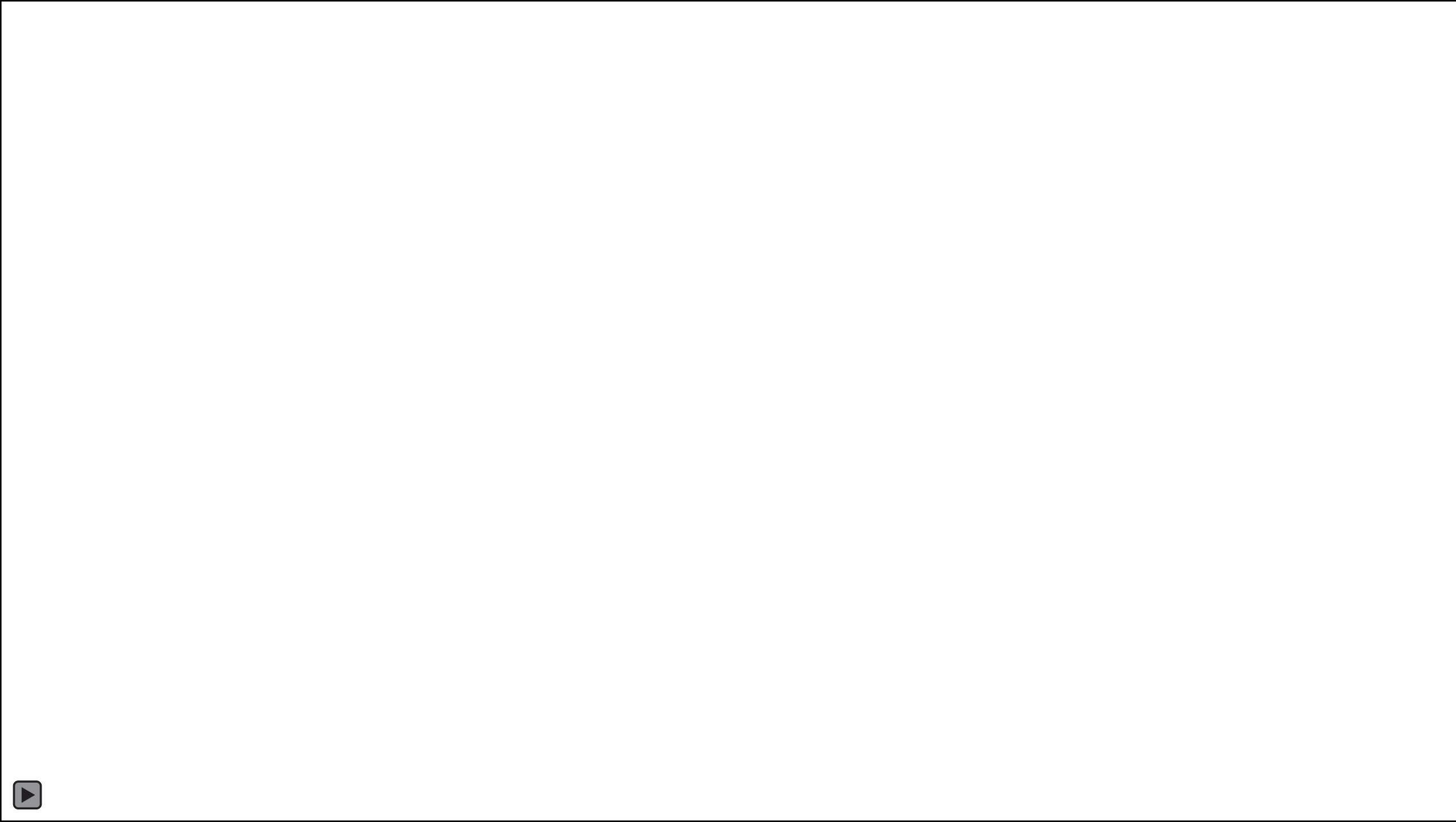
- Schedule – Tuesdays & Fridays; 09 30 am to 11 00 am
- Room - A- 106 and Design studio - A-419
- Lectures and Lab sessions
- Assignments – 5 individual assignments
- Projects – Groups of 3 members
- Weightages -

Assignments (2 in-class)	$10 * 5 = 50$
Main Project	20
Mid-Sem Project	15
End Sem exam	15
Class attendance and participation (Bonus)	5

Expectations



- Try to imbibe prototyping process
- Read resource material and discuss it in class
- Do assignments and projects with due diligence and honesty
- Class participation – bonus points for those who participate
- **Take deadlines seriously**



In this course



This course will provide an introduction to rapid and soft prototyping processes such as

- Cardboard and paper prototyping
- Clay modelling
- 3D printing
- 2.5D Design and Laser Cutting
- PCB Design
- Arduino, sensing and input-feedback loop
- Bread board circuits

- Basics of form and aesthetics

In this course



We will work with small equipment like



In this course



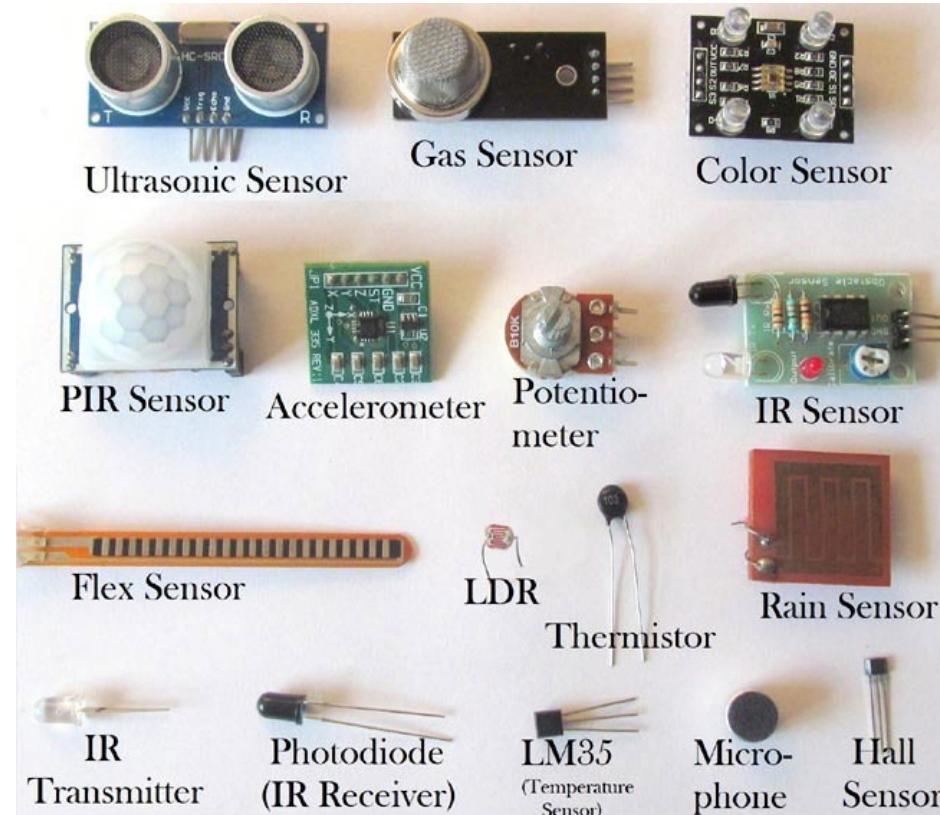
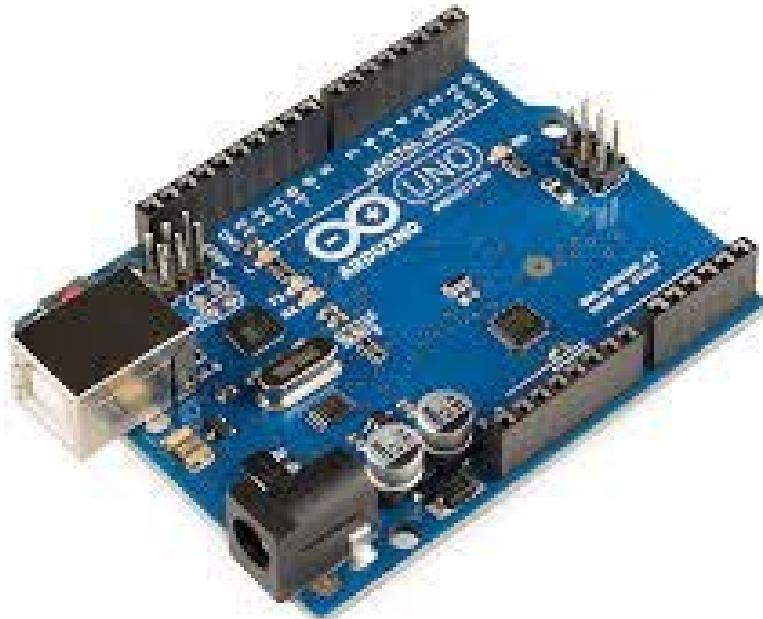
We will work with several big equipment as well



In this course



This course will introduce you to..



In this course



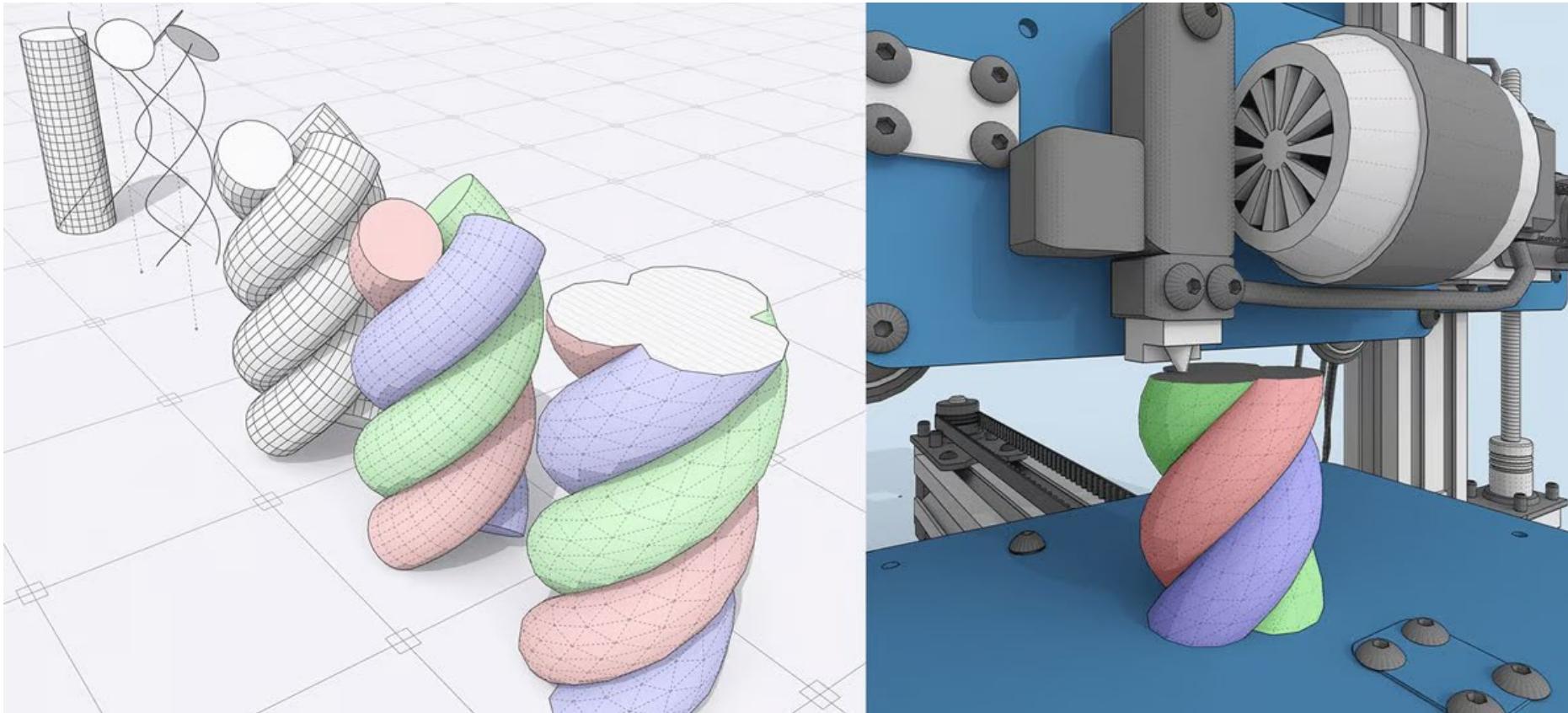
This course will provide an introduction to various software platforms



In this course



with special focus on 3D CAD modelling using Fusion 360



In this course



- We will also explore different prototyping materials





Prototyping - Importance in Design

What is a Prototype?



A prototype is



An artefact that someone can touch, hold, see, or interact with in some way so that they can offer feedback

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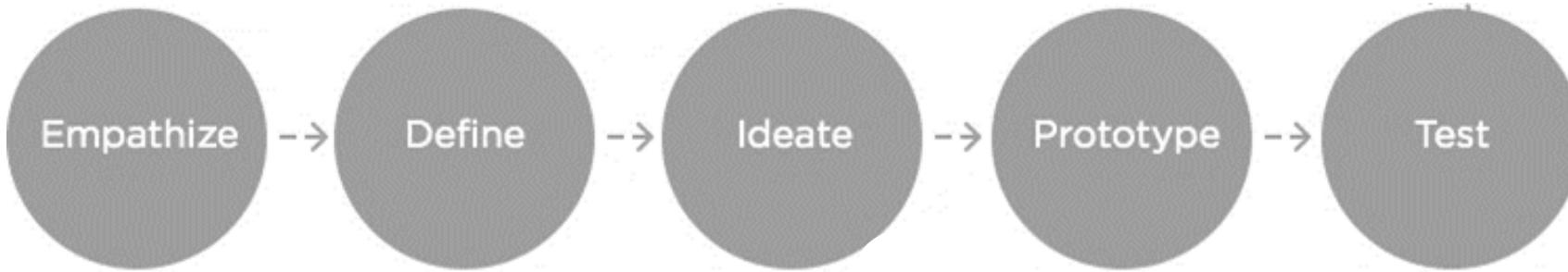
- Prototypes provide the means for **examining design problems** and **evaluating solutions**
- The purpose of a prototype is to answer the following design questions
 - What **role** will the artefact play in a user's life?
 - How should it **look and feel**?
 - How should it be **implemented**?
- It is an **important and essential** part of the design thinking process



Design Thinking Process



The 5 – Step Design Thinking Process

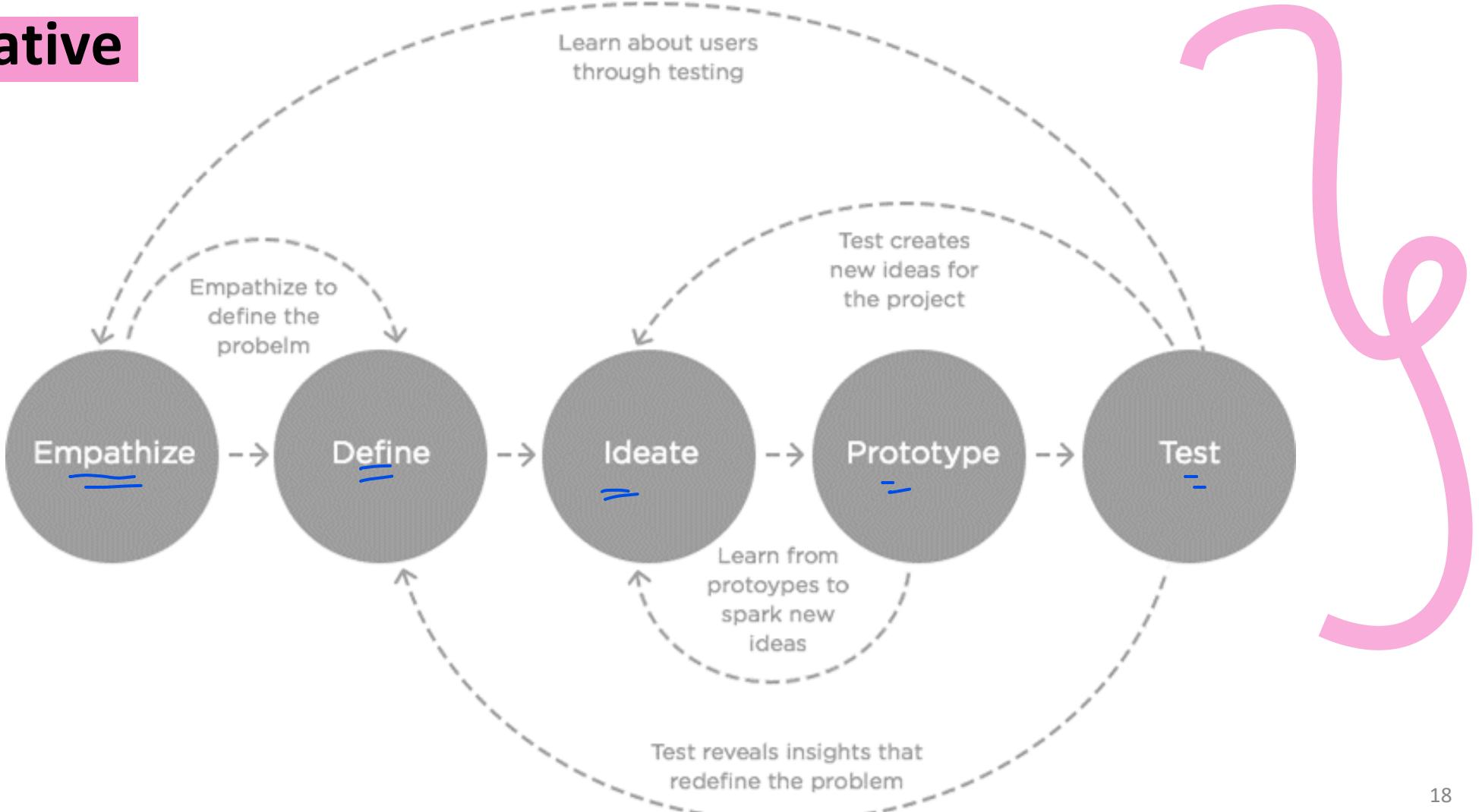


But, what is wrong with this diagram?

Design Thinking Process



Iterative



Why Prototype?



- Evaluation and feedback are central to design of interactions
- Stakeholders can interact with a prototype more easily than with a document or a drawing
- Communicate the idea more effectively
- Encourages reflection : very important aspect of design
- Help answer questions
- Facilitate choosing between alternatives

Makes Design, Human-Centered



Prototyping allows interaction of an idea with various stakeholders during the design process

- **End Users:**

- Allows end users to interact with and explore its suitability and usability

- **Design Team:**

- Allows designers to interact with the envisioned product
- Gain some experience of using the solutions, roleplay exercises
- Imagine and explore use cases, select design features
- Facilitates ideation, exploring requirements, participatory design

Makes Design, Human-Centered



● Sales/Marketing Team:

- Allows estimation of prospective sale based on reception of alpha versions; market analysis; product placement

● Production Team:

- Allows production of intermediary product for required analysis, process streamlining, identify need for procurement of equipment
- Allows incremental and iterative building of digital solutions

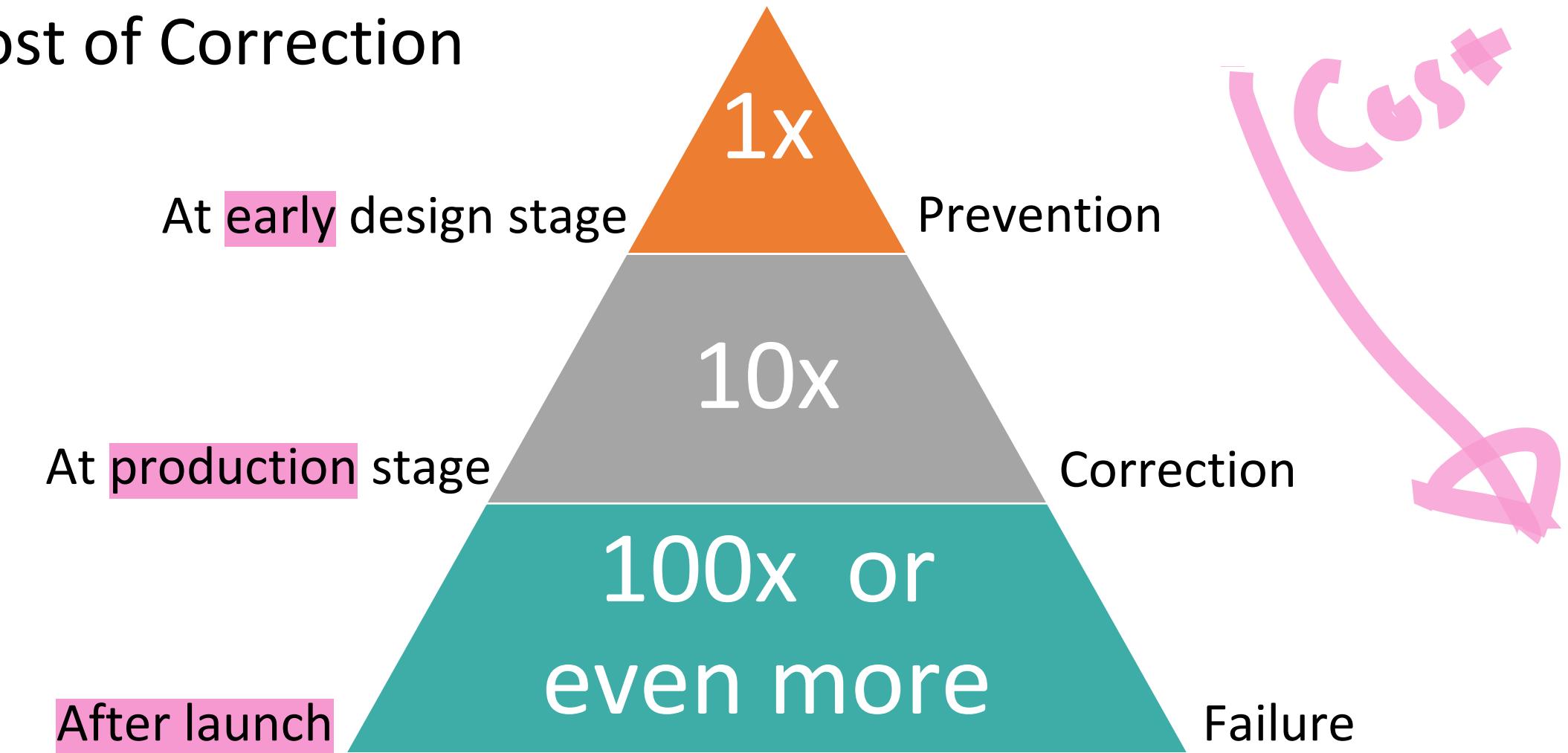
● Funders/Sponsors:

- Allows product visualization for investors; helps in go/no-go decisions

The 1-10-100 Rule



Cost of Correction



Key Points



- Trial and error – DEVELOPING > TESTING > IMPROVING
- Facilitates Design Iteration
- Low cost – low risk way
- Saves time and money for innovators and stakeholders
- Allows for testing ideas before implementing

About Design & Innovation Lab



For The Students, By The Students

