Topic	SELF DESIGN PROJECT STAGE 0: DESIGN THINKING	
Class Description	**Students will learn about the design thinking process. Students will understand how design thinking can help to get better solutions.**	
Class	**C188**	
Class time	**45 mins**	
Goal	• Learn about the design thinking process.	

Resources Required	• Teacher Resources:
	  ○ Visual Studio Code Editor
	  ○ laptop with internet connectivity
	  ○ smartphone
	  ○ earphones with mic
	  ○ notebook and pen
	• Student Resources:
	  ○ Visual Studio Code Editor
	  ○ laptop with internet connectivity
	  ○ smartphone
	  ○ earphones with mic
	  ○ notebook and pen	

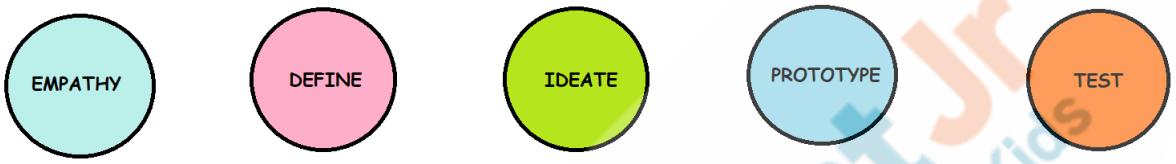
Class structure	**Warm-Up** **Teacher-led Activity** **Student-led Activity** **Wrap-Up**	**05 mins** **15 mins** **20 mins** **05 mins**
WARM-UP SESSION - 5 mins		
CONTEXT • **Understand the design thinking process.**		

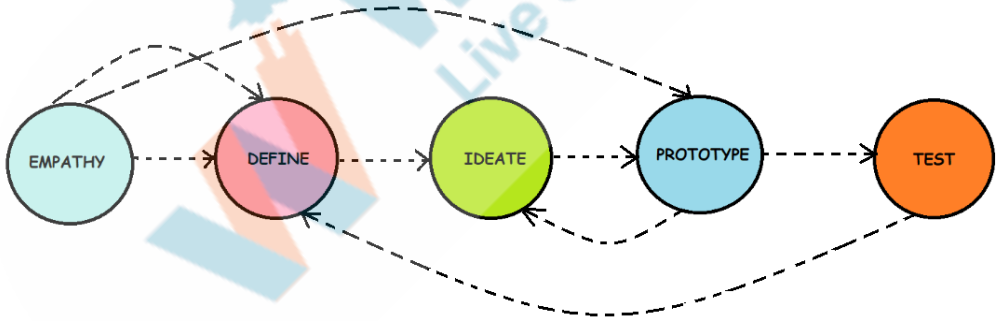
Teacher Starts Slideshow  **Slide 1 to 3** Refer to speaker notes and follow the instructions on each slide.	
Hey <student's name>. How are you? It's great to see you! Are you excited to learn something new today? **Following are the WARM-UP session deliverables:** • Greet the student. • Revision of previous class activities.	**ESR**: Hi, thanks! Yes I am excited about it! Click on the slide show tab and present the slides
WARM-UP QUIZ Click on In-Class Quiz	
Continue WARM-UP Session  **Slide 4 to 14**	
Following are the session deliverables: • Appreciate the student. • Narrate the story by using hand gestures and voice modulation methods to bring in more interest in students.	

Class Steps	Teacher Action	Student Action
Step 1: Warm-Up (5 mins)	Hi, how are you? Great!	**ESR:** I am good!
	Can you tell me what we have learned in the previous class?	**ESR:** • We revised augmented reality concepts. • We learned to make a portfolio using QR code and pattern markers.

	Amazing! ***Note**: Encourage the student to discuss what they remember and help them to be more involved.* In today's class, we will learn about the design and thinking process. This can help us to solve problems in a much better way. Are you excited? Let's get started then.	***Note**: The student discusses his/her views with the teacher.* **ESR**: Yes.
Teacher Ends Slideshow 		
TEACHER-LED ACTIVITY - 15 mins		
Teacher Initiates Screen Share		
CHALLENGE • **Understand the design and thinking process.**		

Step 2: Teacher-led Activity (15 mins)	Let us understand what design thinking means? Any ideas? **Design thinking** is the process of finding innovative solutions to the problems we are trying to solve. The design thinking techniques help us to find user-centric solutions to the problem. The ideology behind the design thinking process is that we must have the designers' mindset (which is highly logical, innovative and creative) to find creative solutions to the problems. Design thinking originally comes from the designer's toolkit and can now be applied in any field to get innovative solutions for the users. This process is used to solve '**highly complex, wicked problems**' that can't be solved using standard methods. It requires '**out-of-the-box**' thinking to get solutions. The whole design thinking process can be divided into **5 key steps**: ***[Teacher Activity 1]***	**ESR**: Varied.

	• Empathy • Define • Ideate • Prototype • Test	
		
	Let's understand a little bit more about these 5 stages of design thinking: • **Empathy**: Getting to know what users want, understanding the needs of the users requires a lot of research. This phase requires interacting with actual users and understanding their needs for the product. • **Define**: Defining the problem in a user-centric way. • **Ideate**: This phase focuses on creative idea generation. Ideas for possible solutions. • **Prototype**: Sample output. It could be in the form of a sketch, flow diagrams etc. This phase	

	helps us to go closer to the solutions. • **Test**: Testing the result. This phase helps to figure out what will work and what will not. If something is not working then go back a step and rethink the solution. Find out the fix and test again. **Design thinking** is **not a sequential process**; that is, the phases are not completed one after another. We might need to go back to the stage again, if needed, to refine our solution to get better products. *[Teacher Activity 2]*	
		
	Now let's apply this process of design thinking in the application that you will be building in the upcoming classes. Are you excited?	**ESR**: Yes!

Teacher Stops Screen Share		
STUDENT-LED ACTIVITY - 20 mins		
• **Ask the student to press the ESC key to come back to the panel.** • **Guide the student to start screen share.** • **Teacher gets into fullscreen.**		
<u>ACTIVITY</u> • **Understand the design and thinking process.**		
Step 3: Student-led Activity (20 mins)	*Guide the student to come with their ideas and answer these questions.* Whenever we try to make an application, we should answer a few questions under each phase of the design thinking process to get a better result at the end of each phase. For example, if you're building a virtual reality game application, then the possible questions can be: **Phase 1: Empathize** In this phase, we need to gather the information from the actual users. These questions can help us to get started: • What will we make? • Who can all use this? • Why should we make this? • How can we help humans with this application? • Who will all benefit from this application?	**ESR**: • We will be making a flight simulation app. • This can help aspiring pilots to train themselves better. People who

	• How can this application help a large community? **Phase 2: Defining** We need to define the product into a problem statement that we want to build; we might start by formulating around the following questions: • What is the problem statement? • What are the challenges that we face? • Defining a human-centric problem statement? **Phase 3: Ideation** In this we need to apply the out of the box thinking to gather creative idea to build the product:	want to know how it feels to fly a plane without being an actual pilot will love this. • This can also allow the younger generation to have a fun game to play. **ESR**: • We will be making a virtual reality flight simulation app to help aspiring pilots. • We might face the challenge of managing a heaving application.

	• What are the elements that we will need? • How is it going to work? • How will it be given to end users? • How is a scene going to look? • What will be the rules in the game? • Do we need to assign some points to the players? • Is it going to be a single player or multiplayer? • What will be the physics in the game? • How can physics be implemented in 3D? • Is there going to be any time limit? **Phase 4: Prototyping** We can design/build a prototype (how the actual product will be) based on the following element, for virtual reality application, we will need: • Scene • Game rules • Flight controls • Player movement • Points to the players • Single player • 3D collisions • Timer • 3D Text	**ESR**: • We will be needing a VR development Framework/library. • We can add a timer. • We can add scores • We can add obstacles. This will require physics.

	This will result in the first version of the actual product that can be tested. **Phase 5: Testing** We should be able to run the prototype successfully; if not, then we should cross-check by asking the questions such as: • Issues coming to the trial run? • How can we fix them? • Can we improve this prototype, or do we need a new idea? • Did we try it with the end users? • What was the user's reaction to the product? Now students can think of a new application idea and answer these questions **again**. *Guide the student to come with their ideas and answer these questions.*	

Teacher Guides Student to Stop Screen Share

WRAP UP SESSION - 5 mins

Teacher Starts Slideshow
Slide 15 to 18

Activity details

Following are the WRAP-UP session deliverables:

- Appreciate the student.
- Revise the current class activities.

- Discuss the quizzes.

WRAP-UP QUIZ
Click on In-Class Quiz

Continue WRAP-UP Session
Slide 19 to 24

Activity Details

Following are the session deliverables:

- Explain the facts and trivia
- Next class challenge
- Project for the day
- Additional Activity (Optional)

FEEDBACK

- **Appreciate and compliment the student for trying to learn a difficult concept.**
- **Get to know how they are feeling after the session.**
- **Review and check their understanding.**

Teacher Action	Student Action
You get Hats off for your excellent work!	*Make sure you have given at least 2 Hats Off during the class for:* 

PROJECT OVERVIEW DISCUSSION
Refer the document below in Activity Links Sections

Teacher Clicks ✖ End Class		

Additional Activities	*Encourage the student to write reflection notes in their reflection journal using markdown.*
	
	Use these as guiding questions:
	• What happened today?
	  ○ Describe what happened.
	  ○ The code I wrote.
	• How did I feel after the class?
	• What have I learned about programming and developing games?
	• What aspects of the class helped me? What did I find difficult?
		The student uses the markdown editor to write their reflections in a reflection journal.

Activity	Activity Name	Links
Teacher Activity 1	Design Thinking Key Elements	https://s3-whjr-v2-prod-bucket.whjr.online/78ce478a-479f-4754-be2a-63c2f6380c63.png
Teacher Activity 2	Design Thinking Flow	https://s3-whjr-v2-prod-bucket.whjr.online/60c29b01-12b4-4a61-8c44-78ad50f9434a.png
Student Activity 1	Design Thinking Key Elements	https://s3-whjr-v2-prod-bucket.whjr.online/78ce478a-479f-4754-be2a-63c2f6380c63.png
Student Activity 3	Design Thinking Flow	https://s3-whjr-v2-prod-bucket.whjr.online/60c29b01-12b4-4a61-8c44-78ad50f9434a.png
Teacher	Project Document	https://s3-whjr-curriculum-uploads.whjr.onli

Reference 1		ne/6fb5ea0b-189d-4044-a771-3bd4c5755fc2.pdf
Teacher Reference 2	Visual-Aid	https://s3-whjr-curriculum-uploads.whjr.online/565b242b-20a3-4344-bb22-84abd01bdcd4.html
Teacher Reference 3	In-Class Quiz	https://s3-whjr-curriculum-uploads.whjr.online/b9416506-9ecf-4ba0-8463-63ab82186d48.pdf