Lesson Plan

Design based on Classical Indian Knowledge Systems

Learning Objectives

1. Identify and explore the meanings of **abstraction, symbolism and storytelling** using principles from ancient Indian arts and design.
2. Familiarising with and following the **traditional Indian Design Process to give meaning to the abstract**, converting formless ideas into form.
3. Learning abstraction using **mapping of various design elements** to the human body and elements found in nature.
4. Understand the human body using **anthropometric measurements, ratios and movements** from ancient arts to create universal designs.
5. Learn the importance and application of **different types of grids** in design and architecture.
6. Learn theories of visual communication like **balance, hierarchy, focus and transition** using examples from ancient Indian arts.
7. Explore recursive procedures like **fractals to detail forms** in design using examples from traditional Indian arts and nature.
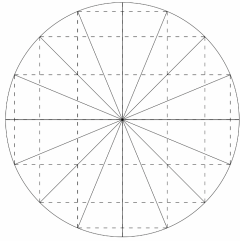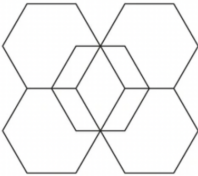
Grade

Class XII (≈ 30 students)

Duration

18 hrs = 12 hrs at school + 6 hrs at home

Overview

Day	Slots	Topic	Subtopic	Introduction + Learning Objectives	Main Tasks	Contingency Tasks	Interactive Content
Day 1 // 2 hrs	**Slot 1** // 40 mins	**Introduction**	What are Indian Knowledge Systems?	**Discussion** on what the students understand by IKS			
				Introduction to IKS and its classifications (ancient and modern)			
				Introduction to the **Design Process in ancient India** (converting formless to form) using an overview from existing examples like temples			
	Slot 2 // 40 mins	**Having an abstract idea**	Abstraction and storytelling	Kickstarting the Indian Design process with **having an initial abstract idea**	**CLASS EXERCISE // Exercise Sheet 1**: Abstract v/s real: In groups, **segregate a collection of images into abstract and realistic**. For added interactivity, the teacher can procure similar real objects and ask students to segregate them as well. Give reason for the segregation and explore what makes an artefact abstract, and **what ideas the abstract artefacts are trying to represent are** (the story they're telling).	Can show **screen based images** as slides if printouts and artefacts aren't available.	
				Form v/s formless : Introduction to what is **abstract v/s what is real** using traditional and existing examples			
				Communicating the abstract using **Symbolism and storytelling** using examples from Indian arts and theatre: How abstract ideas were communicated with the help of intriguing stories			
				Doing the **class exercise** *(15-20 mins)*			
	Slot 3 // 40 mins	**Concretising the abstract**	Metaphors	Understand **metaphors to communicate stories** as a way of abstraction using examples from Indian theatre	**HOME EXERCISE Option 1 // Exercise Sheet 2A**: Consider these **formless ideas and communicate them using simple abstract shapes** such that the core message remains communicable (make 2 versions for each): • Connection of Heaven and Earth • An Explosion • The circle of life • The centre of the universe • Outside *(1 hr)*		
				Brainstorming and discussion on where the students might have encountered similar metaphors to represent something in daily life (can be theatre, movies, stories, etc)	**HOME EXERCISE Option 2 // Exercise Sheet 2B**: Write a **simple story in five lines** using these words: Sunrise, perseverance, colours, fear, determination, elaborate. Using simple abstract shapes, **communicate the story in five frames**. *(1 hr)*		
				Explore representation of abstract ideas in stories using **metaphors** like shapes (spiral with unchanging centre, circle showing cyclic time, etc), colours, position in space and direction.	**HOME EXERCISE Option 3 // Exercise Sheet 2C**: Choose any two themes out of the given words and **make a collage** of no less than 10 entries each. Can use photos, sketches, magazine cutouts or other visual entries for the collage: Determination, connection, centre, unchanging *(1 hr)*		

Day 2 // 2 hrs	Slot 4 // 40 mins			**Introduction to mappings** as a way to metaphorise the abstract using examples like human body mappings and mappings to elements of nature.	**HOME EXERCISE // Exercise Sheet 3**: Take any one element out of the **five elements of nature**; earth, water, fire, wind and space. Click **three pictures showing the mapping** of this element. Can take articles in and around your house, paintings, patterns and so on. For each of the three pictures, **write in one or two lines how you think the mapping has been done**. Students are encouraged to bring the articles to the class. *(30 mins)*	
				Explore how ideas are **mapped to different elements of nature** using examples from Islamic architecture and churches.		
	Slot 5 // 40 mins	**Concretising the abstract**	Mapping to human body and nature	**Discussion of home exercise**- show the articles and pictures collected by the students and discuss the mappings	**CLASS EXERCISE // Exercise Sheet 4**: Consider the **human body silhouette** (the teacher gets the silhouette printed on a paper distributed to students. They can also make a rough sketch if printout isn't available): **Label it with the given words** in such a way that the labelled body part best compliments the word: Movement, thought, life, motion, work, rest	
				Explore how **components of human body are mapped to different elements** of design to represent different abstract concepts using examples from Hindu temple architecture.		
				Class exercise *(15 mins)*		
				Explore different ways of extracting a visual design grammar from the abstract and concretising it to be translated into design principles: **Explore basic shapes, ratios and hierarchies** that arise from the mappings		
	Slot 6 // 40 mins	**Giving form to the abstract**	Spatial positions of elements and their hierarchies	Explore different ways of executing the next phase in the design process- giving form to the abstract. Understand **how the design principles can be applied visually** using different shapes and concepts like positions and hierarchies.	**HOME EXERCISE // Exercise Sheet 5**: Hierarchies: Consider the following letters and their hierarchical order. **Take 5 different leaves** of different sizes, shapes and colours, preferably from different plants. **Arrange the leaves in a hierarchical order based on their visual attributes** like size, colour, etc. in a manner as shown below. Least striking Most striking Now, **paste the leaves on the Talamana grid** according to their hierarchy.	If leaves are not accessible, students **can take other objects** like everyday household items.
				Explore ways of **using shapes that arise from the design principles visually**, using examples like architecture and graphic design.		
				Explore **different ways of demonstrating element hierarchies** like spatial placement, size, colour, etc. using examples from ancient architecture, manuscripts and plays. If possible, physical manuscripts may be procured and distributed to the students.		

Day 3 // 2 hrs	**Slot 7** // 40 mins	**Giving form to the abstract**	Grids and 2D Compositions	Discussion of some of the entries of previous day's home exercise.	**CLASS EXERCISE**: The teacher brings a large printout of the **Talamana Grid**, and brings some artefacts which are ordered according to importance. The class then brainstorms to decide which object should be placed where on the grid.	
				How to translate hierarchy and position visually using the grid system- an **introduction to grids**. What are grids and why are they required?		
				Basic **rectangular grids** to divide space for simple element positioning		
				Basic **types of grid systems and components** of a grid.		
				Class Exercise with Talamana Grid *(15 min)*		
	Slot 8 // 40 mins			Visually translating design principles like element hierarchies **using Complex grids** (with unequal space divisions and other features), using examples of natyagrahas and ancient cities like Harappa. (modify a grid to suit your story)	**HOME EXERCISE // Exercise Sheet 6**: Take any **temple/mosque/church floor plan** and take the print out: • Identify and draw the major and minor **grids**. • Identify major **mappings** if applicable and label them. • Label the cardinal **directions**. • Label the **different parts** of the plan (Eg: grabhagriha in temple). *(1 hr)*	
				Analysing a temple plan in detail to understand Grids arising from multiple design principles at once, like element hierarchies, body mappings, directions and other meanings of the story being told.		
	Slot 9 // 40 mins			**Grids in 2D visual composition** using examples of ancient books, manuscripts and sculptures. Can procure and distribute artefacts among students if possible.	**HOME EXERCISE // Exercise Sheet 7**: Take any **Elura Cave Figure**, print it out, and do the following: • What is the **story** behind the figure? • How have the **elements of the story been abstracted** and shown? • Mark the major **grids** on the figure. • Mark **points of focus** on the figure. *(1 hr)*	
				Understand different **theories of visual composition like balance and focus** using different examples of ancient artworks and sculptures.		
				Detailed analysis of any one traditional artwork, like the Mahalakshmi Figure, to show principles of graphic design, storytelling and abstraction.		
Day 4 // 2 hrs	**Slot 10** // 40 mins		Site Visit	**Site visit to a nearby ancient architectural site** (preferably a temple, mosque or a similar structure) with a historical significance, and wonder/explore/understand the story behind it. The building should also preferably have a clear grid layout, surface detailing and other features of Indian design.	**CLASS EXERCISE // Exercise Sheet 8**: • **Analyse the building**- why it was built and what is its significance. • **Come up with own creative stories** of the building's origin, with relativistic realism. (can have supporting pictures and sketches) • Try to **assign meanings to various elements** of the building by comparing them to the elements of the story, how they might have been abstracted and represented, such that everything fits in the structure of their story. (picture/sketch of the element with the meaning given) • If the building actually has a story behind it, that along with the abstractions can be **compared to what the students did**. • Try to identify the **grids used in the building**, and sketch them. Label the various locations of the building in the sketch. • Try to identify the mappings of architectural elements (could be to body parts or elements of nature). • Identify and sketch any **interesting details in or on the building**. Can click pictures. Segregate them based on similarities and present them as collages.	If site visit isn't possible, a **case study of a famous temple/mosque/church** or any other relevant historical building should be done by the students (could be done in groups) and presented in class. The students should note: • **Significance** of the building and the story behind it (if there is none, come up with one creative story) • **How the story elements have been abstracted** into physical forms • **Grids** used, along with sketches • **Mappings** of elements to human body or nature, whatever applicable. *(2 hrs)*
	Slot 11 // 40 mins					
	Slot 12 // 40 mins					

Day	Slot	Unit	Topic	Content	Exercises		Interactive/Digital
Day 5 // 2 hrs	**Slot 13 //** 40 mins		Grids and 2D Compositions	Analysis and **discussion of the site visit/case study**- what was the grid system? Conclude grids by exploring **Grids in all dimensions** using examples of architectural plans, sections and elevations of different ancient buildings. (slightly different grids for similar storytelling). Use the temple 3D model for a better explanation.			
	Slot 14 // 40 mins	**Giving form to the abstract**	Human anatomy and movements	Application of **grids to understand human body proportions**, anatomy and movements, using the circular chakra diagram.	**HOME EXERCISE // Exercise Sheet 9**: **Click pictures of yourself** or someone else from the front, while doing 8 different poses, and print them out. Use the circular chakra diagram shown below and **draw it over each picture** such that: • The navel corresponds to the centre of the grid Next, **give a title** that best describes each pose. *(1 hr)*		A digital and **interactive web-based human figure- abstracted into basic parts**- can be used by the students to understand body positions, and what positions correspond to which emotions. It would be **based on the chakra grid**, with the navel fixed at the center. The website can be accessed via this link: https://jribh. github.io/Stickfigure/
				Abstraction of human body into simple shapes. Understanding **how different body positions translate into different emotions** and meaning, using examples of sculptures. Can use the interactive mannequin to demonstrate various poses, and discuss with the class the different emotions portrayed by those poses.			
	Slot 15 // 40 mins			Discuss some entries from previous day's exercise- how the grid helps understand human poses better. Explore the next step in the design process- **detailing of the basic form; why it is needed**, and how it helps produce intriguing and unique designs. **Class exercise** to warm the students up to the idea of detailing *(10 mins)* **Explore ways of detailing using examples** from architecture and books- fractals, facade sculptures, etc.	**CLASS EXERCISE // Exercise Sheet 10**: Consider the following simple shape. Try to **give it complexity by filling the blank areas** with simple shapes. Make 4 different products using this process.		
Day 6 // 2 hrs	**Slot 16 //** 40 mins	**Detailing the basic form**	Fractals and form transitions	**What are fractals**? Introduction and looking at basic examples from nature. Introduction to **fractals in architecture**: following recursive procedures in 2D and 3D to achieve complex shapes, using visual examples.	**HOME EXERCISE // Exercise Sheet 11**: Click **5 pictures showing examples of fractals** in nature and in your home. Try to identify the basic repeating pattern.		
	Slot 17 // 40 mins			**Class exercise** to introduce recursive processes to students *(15 mins)*	**CLASS EXERCISE // Exercise Sheet 12**: Take any one of the shapes given below. **Join the midpoints of each edge to get a smaller version** of the same shape. Continue the process until you can't go any further.		Explore in 3D how **scaled self-similar replication of forms can be used to detail designs**, using a temple roof as an example. Can be accessed via this link: https://jribh.github. io/TempleFractal/
				Form detailing using fractals in architectural plans made by **form transitions**: Understand shape transitions to get complex forms. **Modifying parametric variations** to get different types of transitions, both in 2D and 3D, and arrive at unique products. **Ornamentation** of forms	**HOME EXERCISE** (exploratory): In class, we joined the midpoints, at half the length of the edge from the vertex. What happens if we try to **join the points a third of the distance away** from the vertex? Can also try other variations using other ratios like 1/4, 1/8, etc.		
	Slot 18 // 40 mins	**Reflection**	Application and overview of the design process	**Reflection on the whole design process** of converting the formless to form using the temple as an example, and how effective the product is is at conveying the intended meaning to the viewer. **Discussions** and query resolution			