Role of Craft and Technology in Interior-Architecture

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Lecture – 25

Week 05: Summary & Discourse

Namaste! Hello everyone. Welcome again to my NPTEL course, Role of Craft and Technology in Interior Architecture. Today we are going to see module 25, which is the summary of what we saw in the previous four modules and, we will be just quickly saying what all we brushed up in those four modules.

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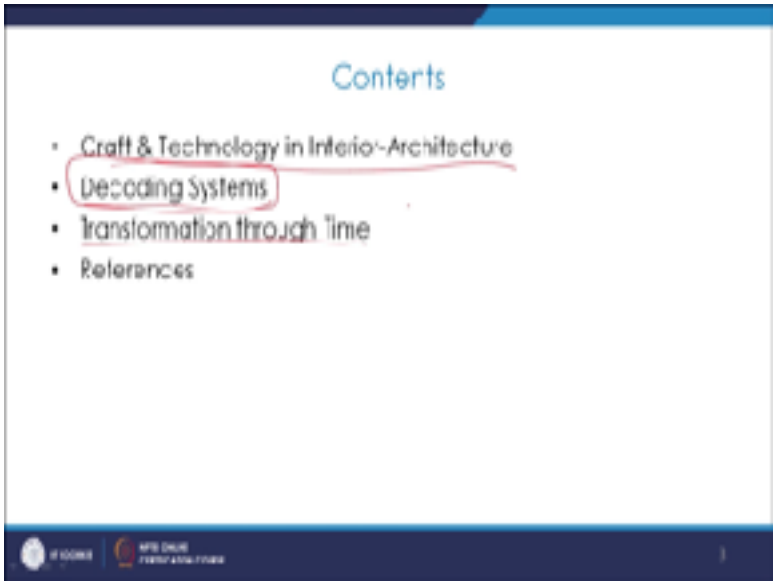

So, will be talking about craft and technology in interior architecture, how we discuss the decoding of systems, how do we map the transformation through time and technology and then the references. So, when we talked about decoding systems in the previous modules, we discussed starting from you know how the human figure was taken as a

reference, to relate to the proportions and you know to come up with ratio for designing columns.

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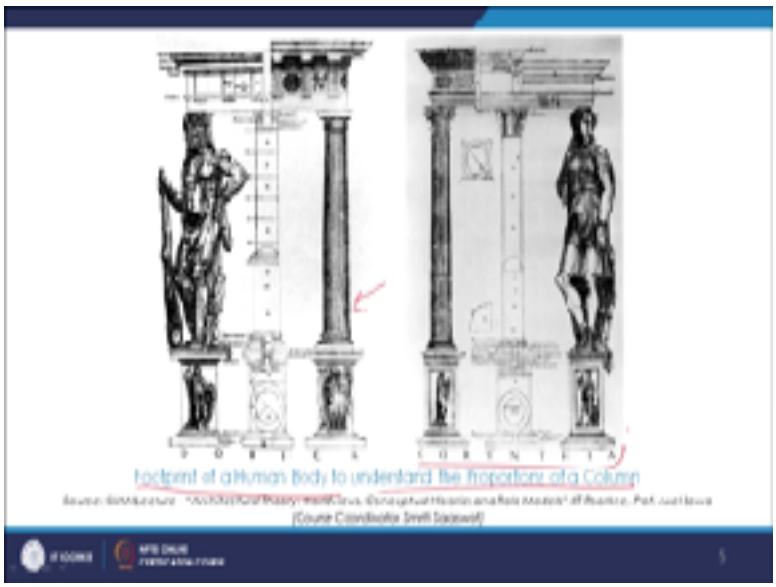

So, here we saw the footprint of human body being taken as a reference to understand the proportions of a column, and we saw the Dorian column and we saw this Corinthian column as well. So, we began discussing from here.

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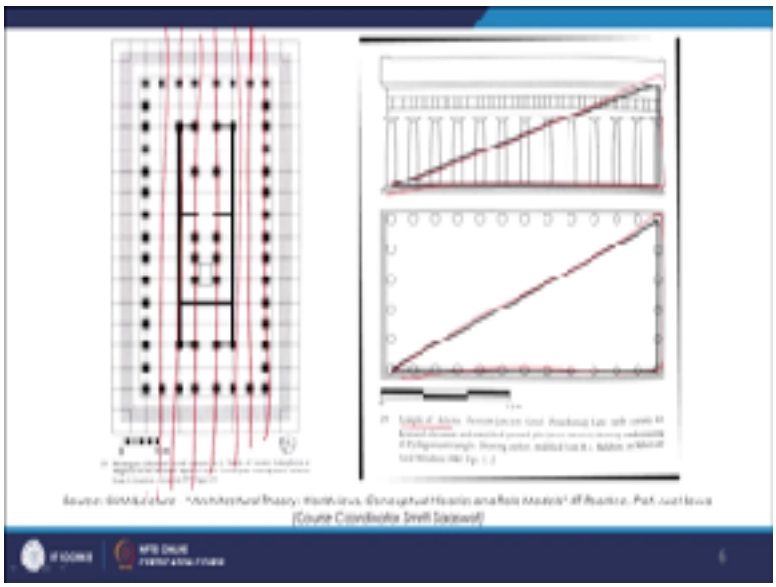

We also saw how in some you know historic interior architecture, examples we see the analysis and the existence of different kinds of systems, when we talk about you know here the temple of Athena and we see in plan and in elevation the Pythagorean triangle which is achieved and how it gives the geometry to the entire form. And we see the existence of grids and how the entire structure is you know, it follows a sort of this grid. So, these kinds of systems were in place, and we study them, and we try to understand them.

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We saw all of this and I am not going to elaborately discuss today. We also saw the emergence of catalogues, you know like they were catalogues of furniture, the catalogues of space making elements, and catalogue of ornamentation also material wise, catalogue focusing on the metal casting, catalogues focusing on the you know timber joinery and things like that.

So, that also give us a sort of a system which one could refer to and, then apply in their designs. So, that kind of system also was there in place.

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We saw this very interesting analogy and how a system was created, where the learning from the botanical sciences was applied in interior architecture, and this kind of you know interrelationship over there we just saw, the learning from one field applied to the other field.

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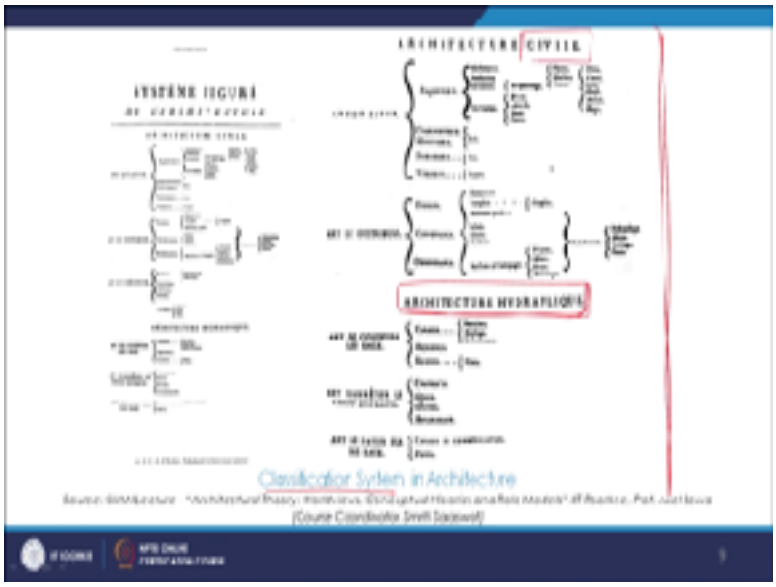

There was this very interesting page from the very rare old book, where we saw the classification in architecture.

So, this again is a sort of a system of classification and, we saw you know how it was classified in terms of the hydraulic applications and in terms of the civil works. So, this also be discussed. We talked about the Vastu Vidya of India and how there is already a sort of rich, interior - architecture, tradition and, the way the dwellings were made, the houses were created, what was the science behind them.

And what was the sort of a system that was followed, what were the principles of design which for embedded within that system, how it was applied not just on the building level, but also on a city level. So, we saw the case of city of Jaipur.

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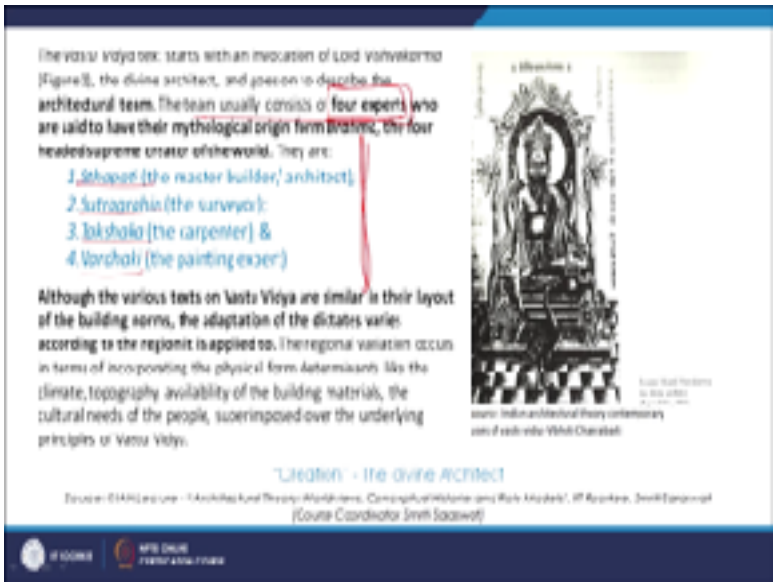

So, all those examples we saw. We also saw this very interesting, you know team of four experts which was defined again in the Vastu Vidya, and we talked about the Sthapati, the Sutragrahin, the Takshaka, and the Vardhaki. So, we discussed this and we tried to understand the traditional knowledge systems, that you know the interior architecture of India has been following through a very very old time.

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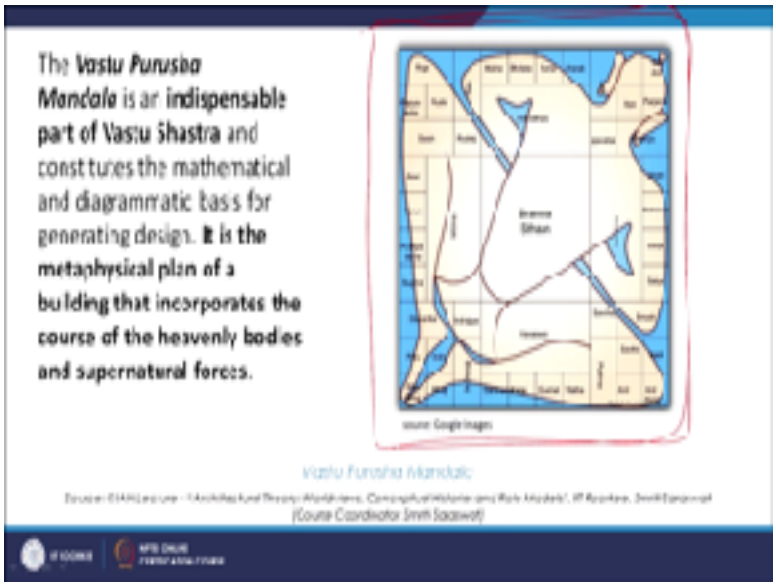

And we try to very briefly understand the Vastu Purush Mandala, and how again it was very profoundly used in Indian interior architecture, and what was the sort of a system that it explained through which the spatial configuration, and the sanctity of the space the energy points were achieved.

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And we talked about the theory of Manasara, and you know how there have been different text which have been translated and till today we have lot of references to

follow that to understand the system that were put in place you know by the ancestors and how the knowledge is being transferred from there.

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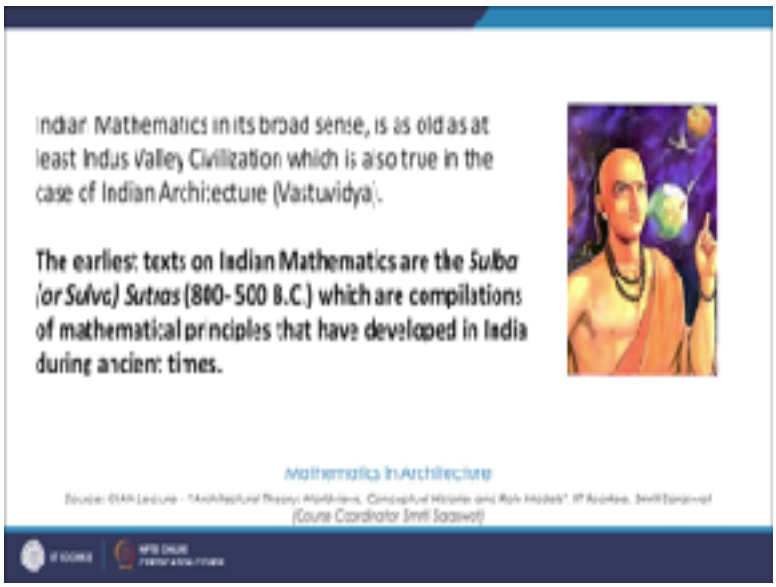

We discussed a very briefly, but you know in a very interesting manner how we see the application of mathematics in interior architecture, what kind of system do we see, and what is the role of geometry, what kind of geometry gives us a stability. So, all those examples we saw, we saw the example of the magnificent Taj Mahal and how the symmetry is achieved in this building.

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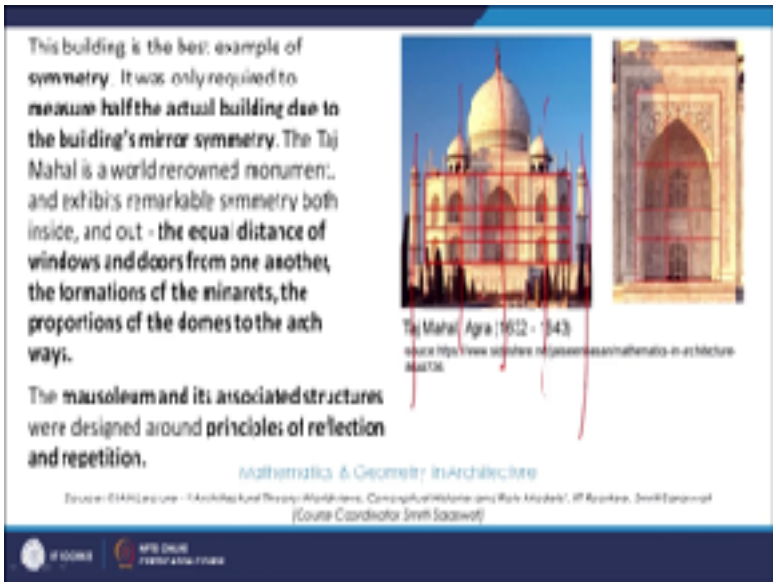

And we also saw the example of Brihadishvara temple, its not on the slide right now, and we saw how the isosceles triangle which was being formed there, created a very stable geometry, then we tried to understand system also in terms of some guiding principals

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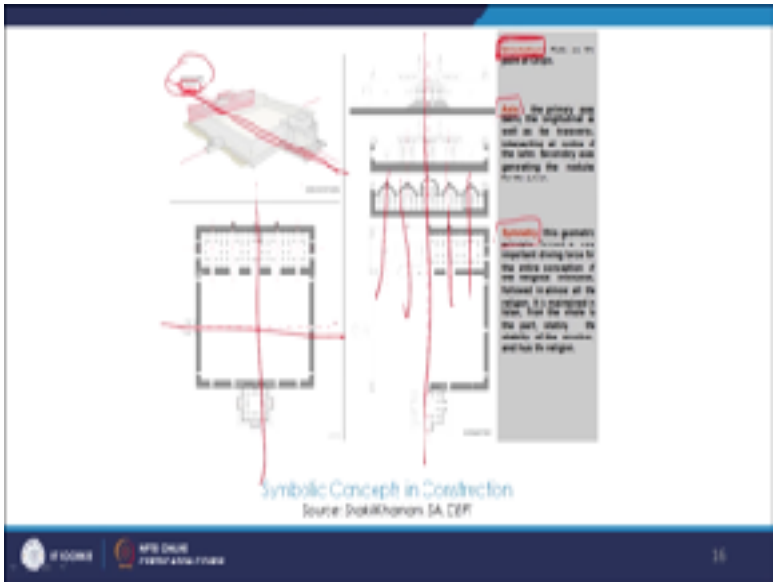

So, when we talk about you know a system in place and to analyse or decode the interior architecture, we talk about it in terms of orientation axis and symmetry, and we saw this

example of you know a mosque from Gujarat, and we see you know how the orientation helps us align the building because towards Kaba here, the west we have.

And then we talked about the symmetry here as well, and we discussed about the axis and how this also creates a sort of a system in which we could organise or spaces we could analyse them and we could also decode them and understand what are the underlying principles of making.

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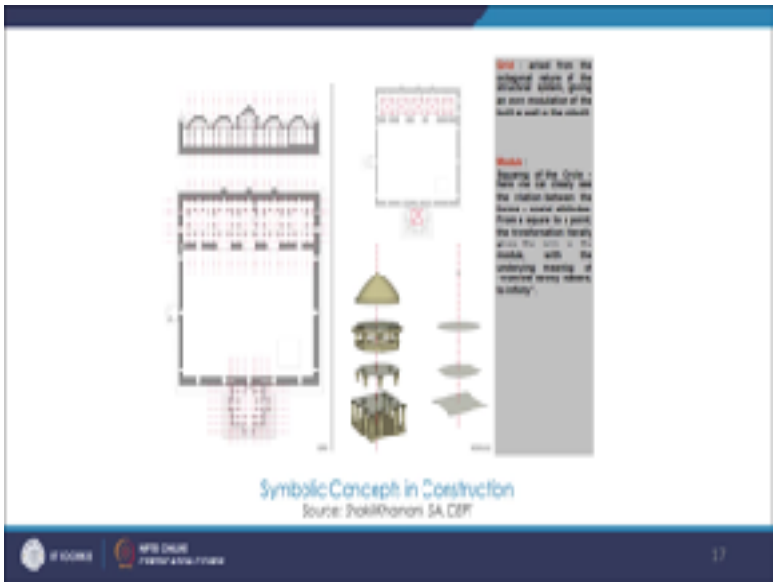

Then some more continuing to the previous slide, we also saw you know how the grid helps us understand the system in place, how the module also helps us in understanding the spatial configuration. So, these are the different nodes of a system which help us analyse the interior architecture. Then we also saw some examples, like this is from Uttarakhand, this is Koti banal architecture, and how there is a system in place.

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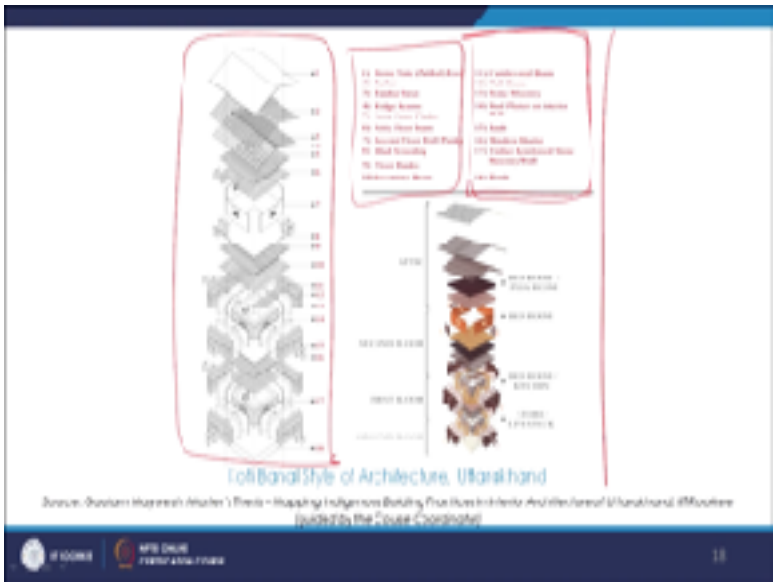

Where we see you know the layering, which layer comes first and how this elaborate construction happens.

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So, this kind of system we saw, we also saw some you know images and description of these wooden traditional houses from Kumaun, where there is a system in place, how these Karigars and the stakeholders communicate. So, what is the local parlance and what kind of language is used there, and what kind of cultural connotation also it has. So,

it sometimes its very interesting, if we try to understand the kind of vocabulary you know is being used on the site, and does it also have some connotation with the day-today objects and things like that.

So, when we talked about systems, we also discussed how technical drawings also give us a sort of a system, to understand interior architecture, to analyse it. So, here what we see is a technical drawing.

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And it gives us all the details you know, what material it is, and what is the thickness, and what is the level at which, a certain element is placed or a certain function is placed and thats how its a system for us to understand a piece of interior architecture, or the building craft that goes into the making of it.

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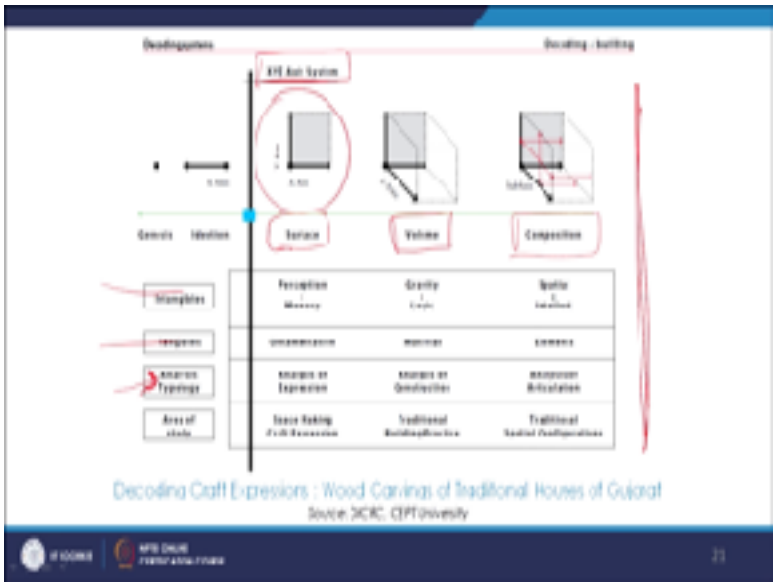

And very interesting systems we discussed and you know how DICRC has come up with this X Y Z axis system, and we try to map some intangibles, tangibles, we have some framework for the analysis and you know how we analyze the craft and the interior architecture in terms of the surface, in terms of the volume, and in terms of the composition. So, we discussed all of this matrix that has been designed by them.

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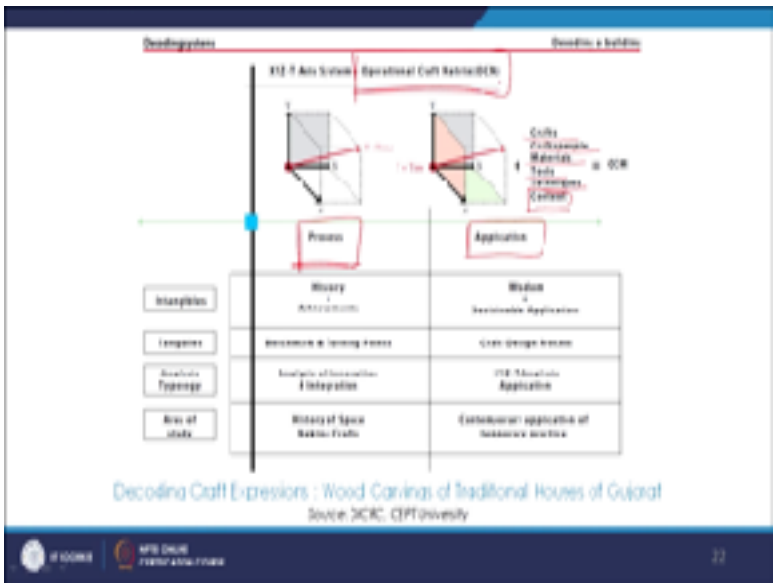

Another one you know where the process and application is also discussed, and there is also a discussion on the craft, craft persons, materials, tools, techniques and the entire context. So, we discuss this operational craft matrix as well. And we saw some examples which were you know analysed through the matrix that has been designed.

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So, in terms of intangibles, how we decode a certain space or interior architecture, and then you know how we map the tangibles like ornamentation like in this case, we saw this in the previous modules.

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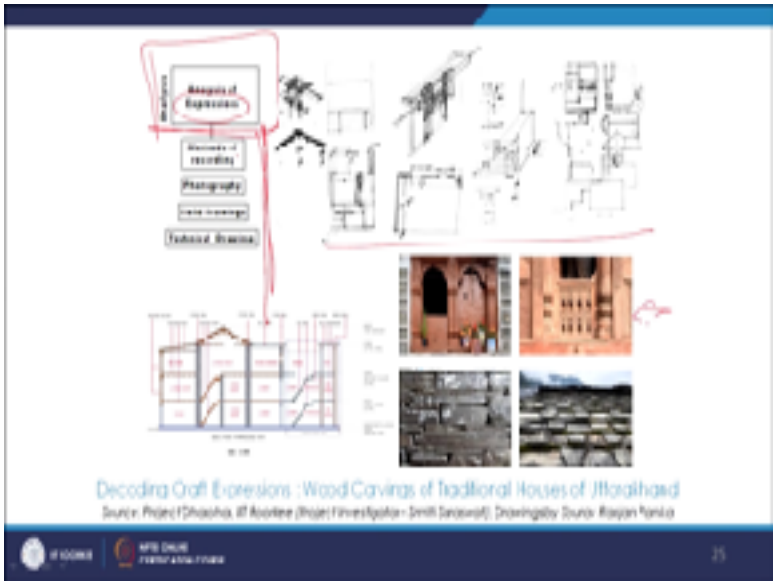

You also try to understand one framework of analysis and how the expressions have been analysed, and how on field the work is done and what is the methodology adopted, so, sketches and images and the drawings all of this we had seen.

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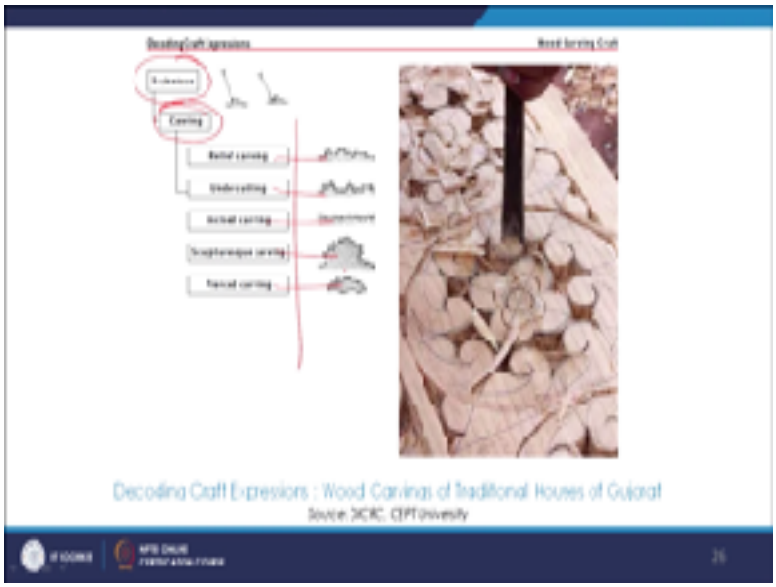

We tried to also understand you know, while we are talking about system, how the mapping of technique is done and, how within one prominent technique we could also see the different underlying methods, and different ways of doing the craft.

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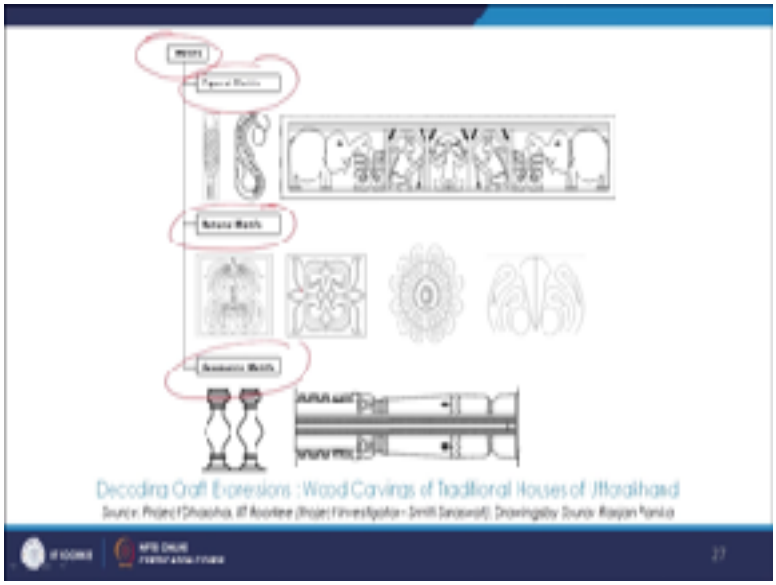

We also saw the discussion on motifs, which is again a part of the matrix that we saw in the previous slide, and how this system was used to analyse interior architecture in building crafts.

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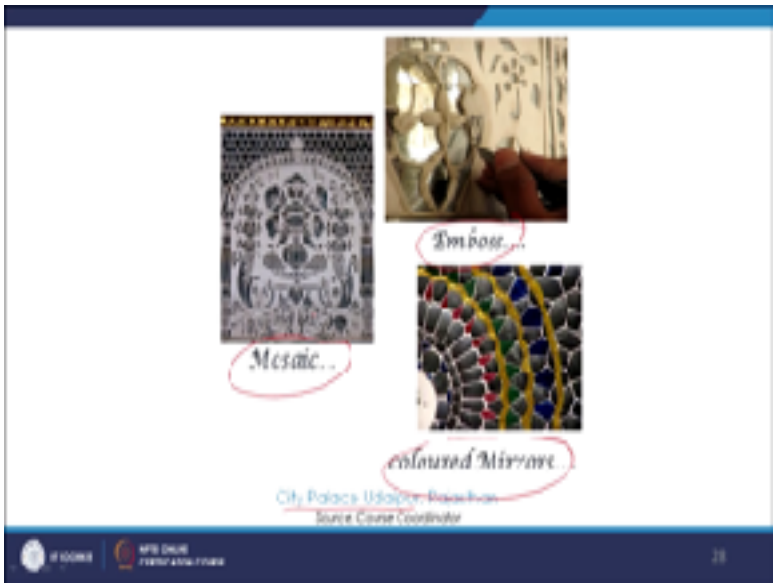

Then we saw the example of mirror work in Udaipur, and this is the system of classification here, and we also saw a system of working.

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You know in what stage is the work happens, and what is the system that has been adopted.

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So, thats again sort of a system which is being given to us. We saw this example of order of painting an arch face, and what is the system in place, how it has been done. So, we

understood through these examples you know different systems, through which we could decode the building crafts in interior architecture and, sometimes and most of the times. It also helps us analyse the interrelationship between the craft and interior architecture.

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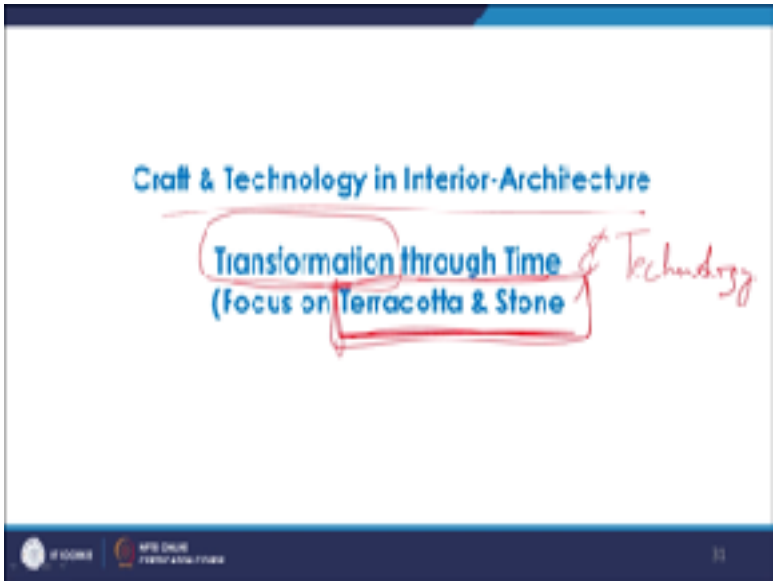

And then we try to understand the craft and technology in interior architecture by focusing on transformation, and that transformation happening through time, also slightly we went towards technology.

So, through time and technology is what we discussed and, we took the examples of terracotta and stone as material. So, beginning from material how the material terracotta and stone has brought changes transformation, in interior architecture and building craft through time and technology is what we also discussed in the previous modules.

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And we saw this research, where it was shown how terracotta being used as an object, currently is being used for construction purposes, and how this entire evolution or transformation has happened.

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And we try to understand you know clay, and how in different forms the clay is being used.

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And, where does the you know discussion on terracotta begin. So, for that we have to first understand clay and the different uses which it has already been catering to, so here, Rammed Earth.

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And beginning from here we try to understand what actually terracotta is, we try to understand its definition, we try to understand its formation, its timeline,

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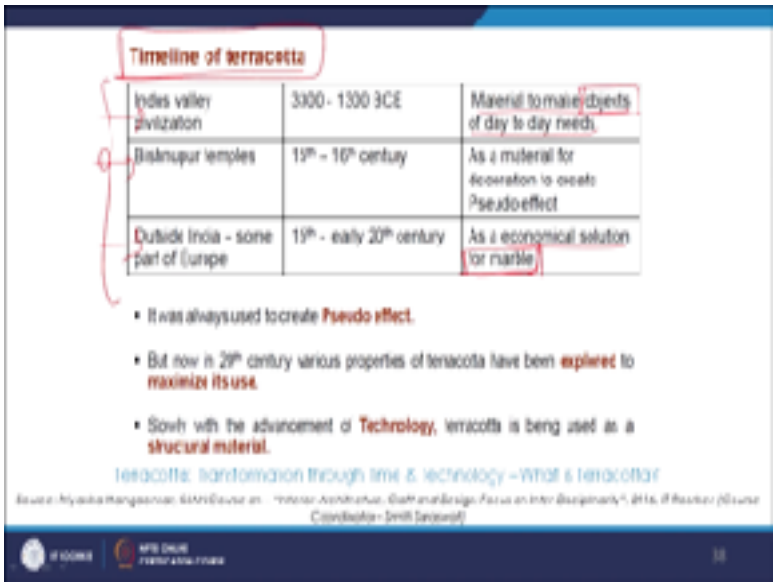

how its different from brick, and where historically we have seen its mentioned, and you know how it has been used in which forms, objects of daily use and somewhere as an economic solution for marble in the building industry as well. So, we saw all those you know all this journey and the transformation that has happened.

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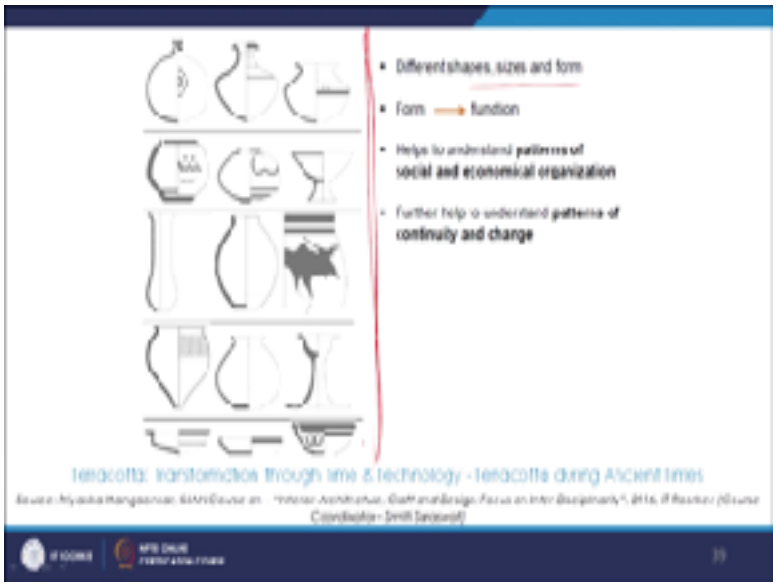

You try to understand different shapes, sizes and forms, and how they were achieved with this material. This we discussed, and we also try to see how you know,

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in different parts of India again terracotta is used in different way. So, here there is an example of Rajasthan, and we see it being used as a mural, it is used in the interior of this house, and then here also we see on the facade of a building.

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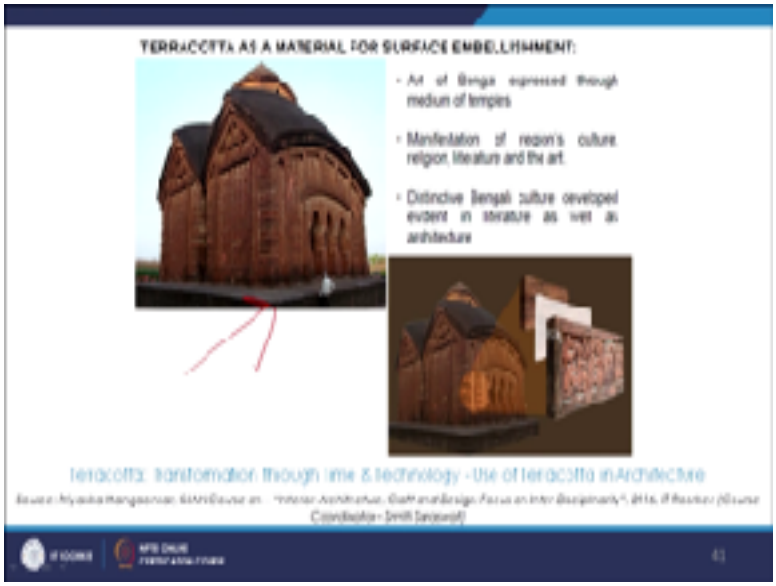

So, we saw all these and try to understand the transition transformation, and how it was used as the surface embellishment material.

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Then through technology, now we have different kinds of standard materials in the market, there pavers, there are tiles.

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And they are used in different purposes, and there are different kinds of technical drawings that explain us, the usage and the details through which that accuracy could be achieved on site.

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We saw these flooring tiles and paver blocks, they are again made out of terracotta and we could make different patterns and composition and use it in a landscaping and for different you know pavements.

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And again we saw the transformation in terracotta through technology, and there are different kinds of applications that we see now.

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Again we saw these examples of different products which are being used, and some more things here, the bottle rack, and this module which is standardised and could be used and available in the market.

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And this is again the main slide that talks about how it is now used in construction industry. So, the hollow terracotta blocks, and how they are used for making you know walls, parapets, and different functions and different space making elements. So, this entire journey we had tried to understand in the previous modules.

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Then we tried to see also another material stone, and starting from the Stonehenge to the contemporary use where it is you know stone is used more like a cladding and different

furniture pieces, also structurally which are structurally also stone is used, but the structures are lighter than what it used to be earlier. So, that journey also we have mapped.

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We saw the Stonehenge, we saw the great hypostyle hall in Egypt, and the use of stone in this historic building.

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We came across the Notre-Dame cathedral, and the detailing, here we were focusing on the stone in terms of the detailing not just structure also the ornamental details.

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And we were talking about the Parthenon, which is all done in stone and how beautifully the proportions have come up and structurally how sound that building was.

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We talked about the pyramids, a very famous pyramids, and how they had this structural geometry and how it was all constructed out of stone. So, we discussed all these historical examples.

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We talked about the roman aqueduct, and how aqueduct a very important piece of interior architecture which was required to bring water from far off places to the interior

of the city for different purposes was constructed with the medium of stone and how that material facilitated that construction.

So, we saw this kind of interrelationship between you know, the material, the purpose it solves, and the building craft and interior architecture. So, those interrelationships are becoming clear, the more we discuss about the material, the more it will be clear to us, how the associated tools and, how the property of that material facilitates into the construction of facilitates the construction of a certain interior architecture for a certain purpose.

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We saw the baths of Caracalla, another example and stone.

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And then we saw some more examples, which saw the Saint Peters basilica, the very famous Peters Basilica.

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We saw the examples from India. We talked about the Ajanta caves all in stone over here.

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We talked about the Ellora caves, we talked about the cave number 16, which is very famous and this is a monolithic structure, and it is the Kailasanath temple and lot of people visit here we discuss this.

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We discuss about the erotic sculptures of Khajuraho.

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We discussed about the stepped wells in Gujarat all done in stone.

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We talked about the very famous Meenakshi temple in South India, and we talked about the interior where this hall of 1000 pillars is there, and we also talked about the ornamentation and the entire form and structure of the temple.

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We talked about some narrative relief sculptures done in stone, and how the scholar Vidya Dehejia has studied them and tried to understand the modes of narration, and she has brought out the Jataka stories of you know prince Siddhartha, and she has tried to

explain them, and how stone as a medium enhances that narrativity, this is what she has told and we discussed about it.

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So, all these details in stone, and how they tell up the stories. So, this is a monkey Jataka and we see the monkey, and the trees over here, and how the story is being told through the medium of stone craft.

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We saw some more examples of stone, interior architecture in building craft.

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And we discussed about the very famous Taj Mahal and the prominent use of white marble.

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We also touched a little base and try to understand the origin and type of stone, based on that origin.

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You also try to understand the stone types based on varied finishes, that we see here in this slide, and then we tried to talk about some more finishes here.

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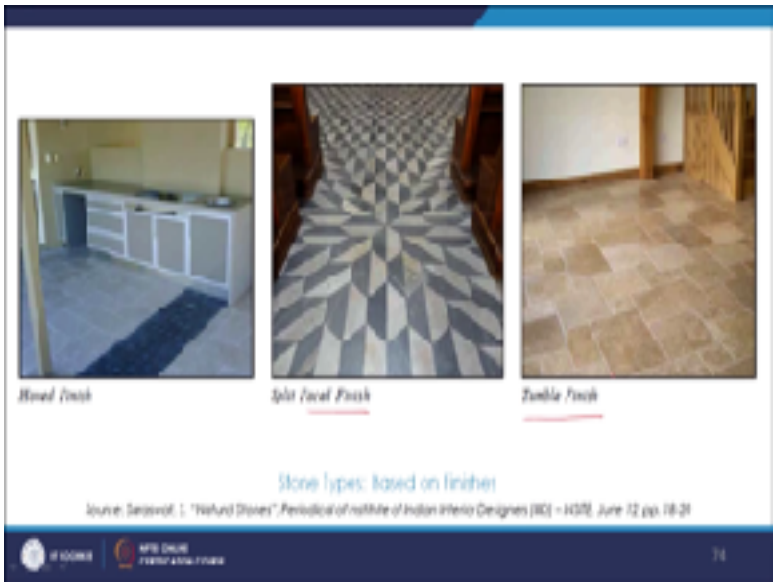

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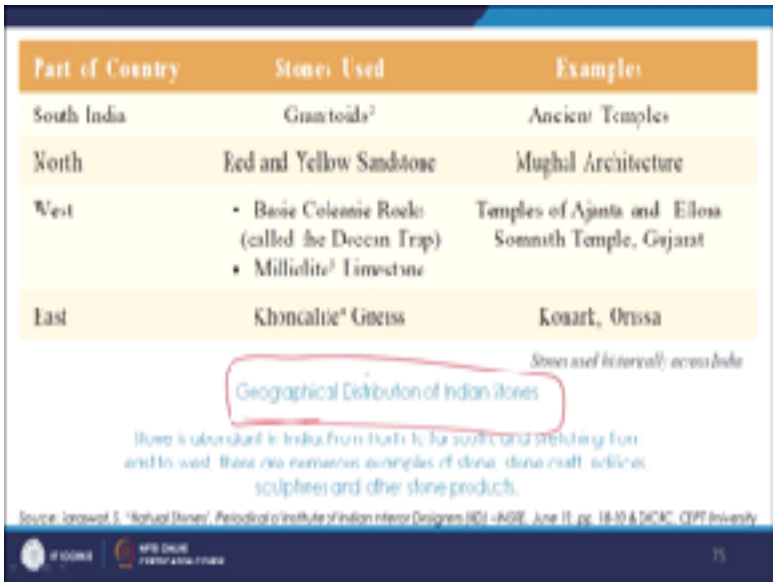

Continuing with that, we tried to also understand the geographical distribution of Indian stones, and we saw some remarkable examples which geographical part of India has which kinds of stones and what are the famous historical examples in that particular geographical region, and what kind of interior architecture was constructed out of those stones.

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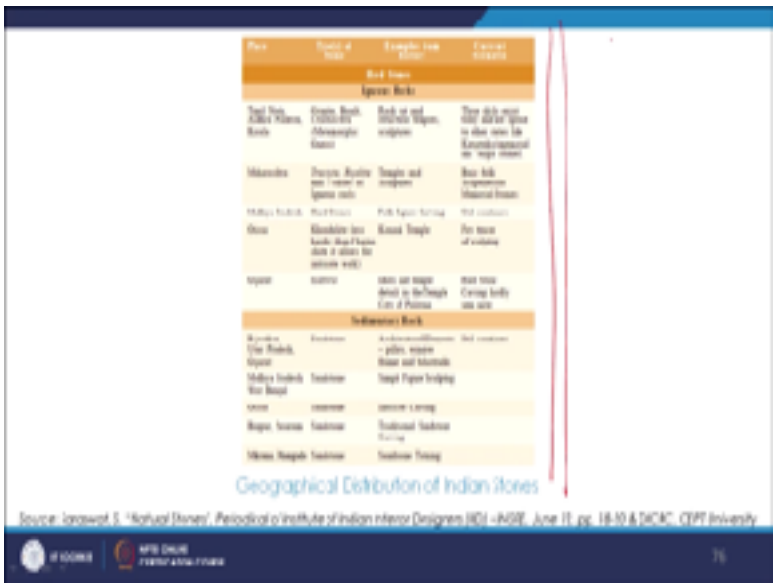

So, we again elaborately saw this geographical distribution.

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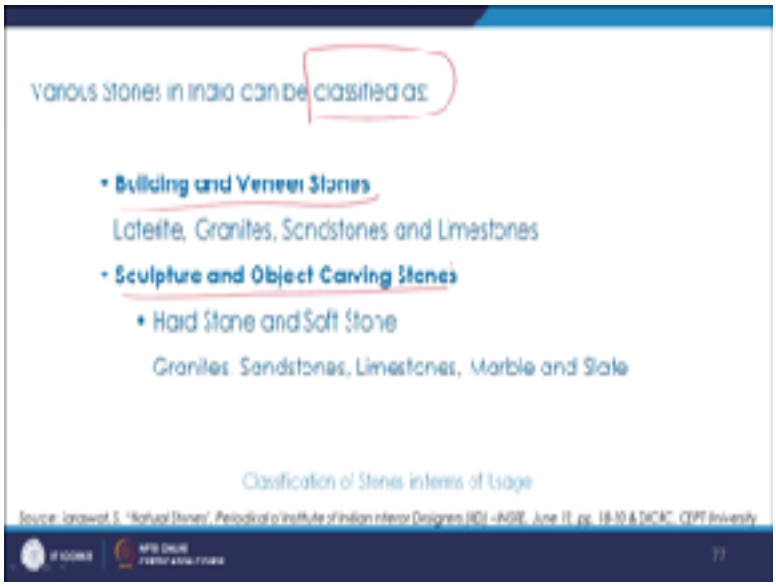

We also went through this system of classifying stones in terms of building and veneer stones, and sculpture, and object carving stones.

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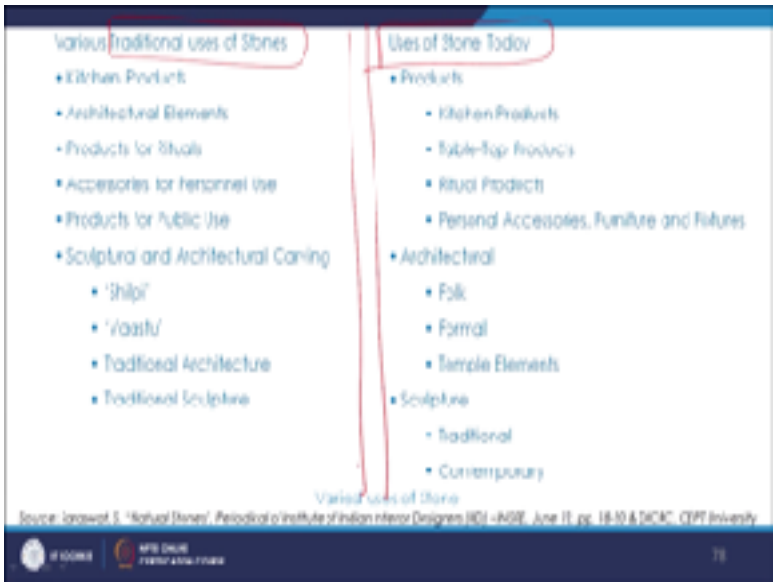

We saw the traditional uses of stones vis-a-vis; the contemporary uses of stones and the different kinds of products, and different kinds of applications on different scales, that is what we brushed through.

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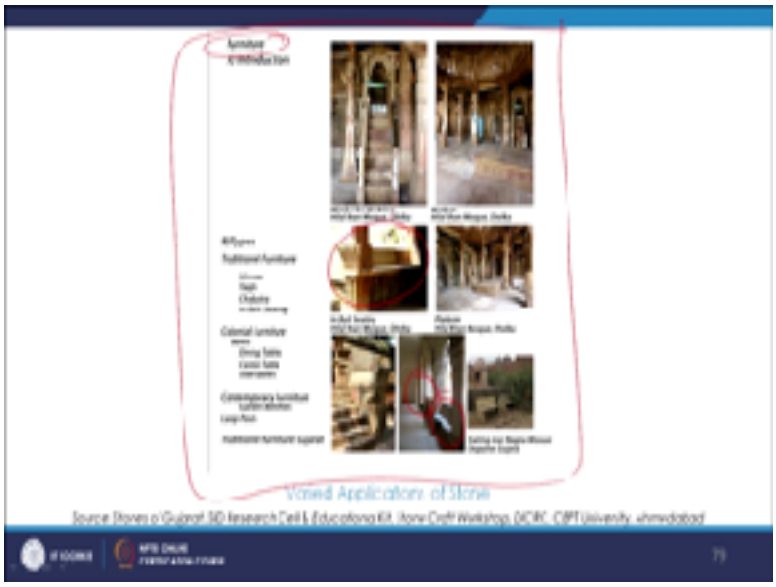

W saw some plates, where we see the application of stone and how the you know this compilation help us understand, what are the different kinds of stone application. So, here we also saw the prominent use of furniture, and we saw some examples like this, the in-built furniture.

So, we discussed about that, we saw some images which explained us the contemporary usage of stone.

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And we see some decoration here, and you know something very simple here. So, all those different examples we saw.

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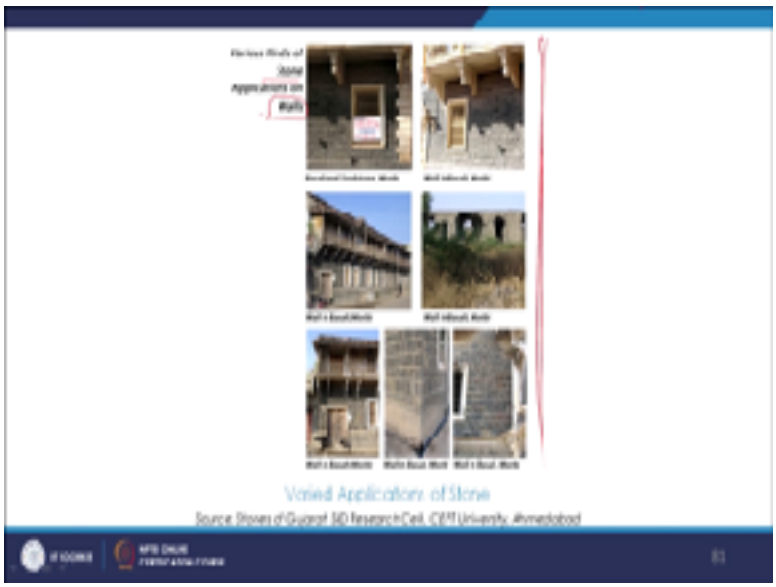

Some more examples that we saw on how you know the various kinds of applications on walls so, here we see that. Taking wall as a space making element, how stone is applied there in different ways.

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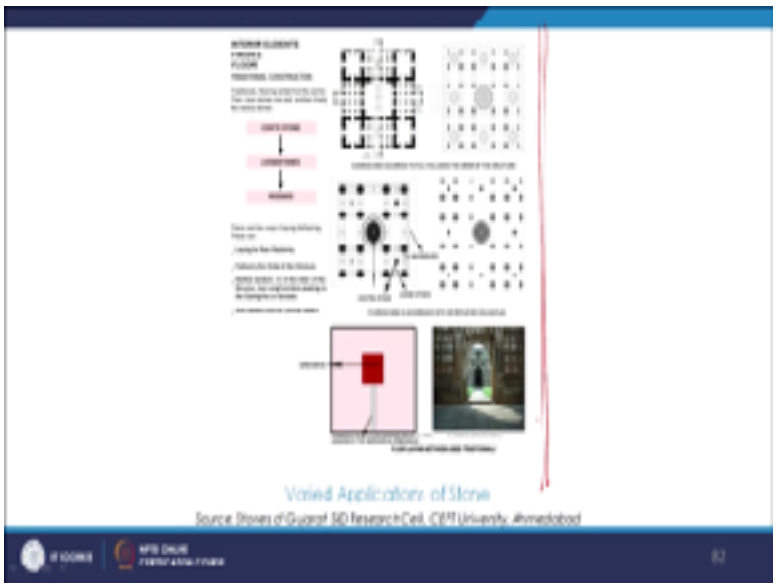

We also saw this example of stone flooring, this is again the application of stone.

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Continuing with the flooring, we saw some more examples.

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And some contemporary uses in how stone is used in the temples, for you know for making temple for storages, for different other elements that could be decorative for of course, the idols. So, the use of stone continues in many different ways, but with changed expressions.

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We had a little discussion on different kinds of tools, that I use while working on the stone.

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And, we just saw the different palette of the tool different kinds of tools within a family.

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We saw this again, and we tried to see and understand how in contemporary times, The tools, machinery, technologies all changing, and the use of stone and its applications are also changing. So, we talked about computer numeric control machines.

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And the computer aided manufacturing, and how robotics is also coming into picture a lot of work is now machine done and not hand done. And at time its a combination of both.

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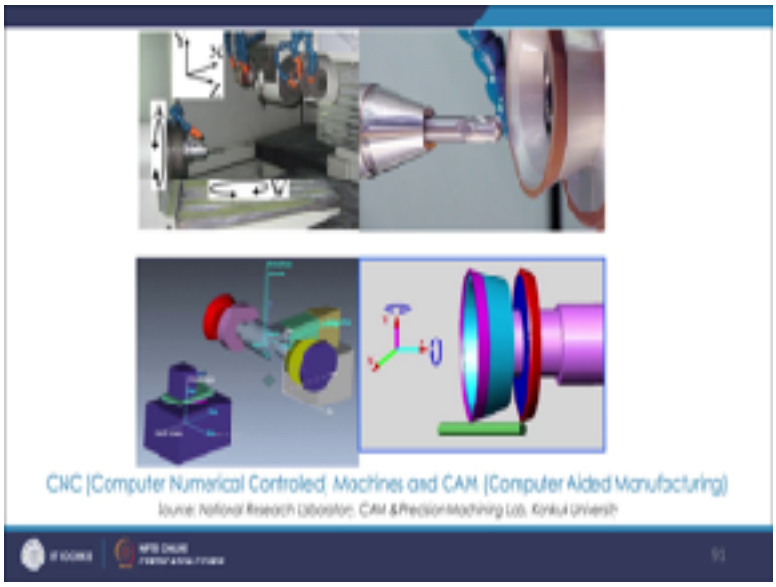

Again some more modern machinery we saw, and how it works. We saw some very fascinating contemporary examples of stone. Now, where stone is used, but the structure is lighter the application is in a very different way.

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So, we saw some examples like this where we see this ventilated stone, ventilated rain screen facades here, this example we saw.

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We saw this opera house, and how the stone is used here.

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This is the interior of the energy centre in United States, we saw some pictures from here.

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And this is again the headquarters of Venus Marble, and here again in different ways the stone is used, and we just ran through this contemporary examples briefly.

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The example from India, this is in temple in Vrindavan and how elaborately it is done in marble with all robotics and artisans coming together with different kinds of tools and machinery.

So, this is a contemporary example and we saw that, some more examples, this is a stone pavilion that we see here.

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Some very interesting forms now that could be achieved in stone. So, you know the heavy material that it was considered, and today we take it as a flexible light material and we can create any form out of it, that is something which has really you know found a lot of interest in its contemporary explorations. So, people just try to understand the flexibility and come up with different forms. So, here again this is stone and we see a very interesting form over here, the hyper vault. So, this is one contemporary exploration.

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This is the another one that we saw, the application of granite.

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And here we see in these three you know towers, how the cladding is done. So, this is limestone clad residential towers and how the stone is used for cladding, that we saw.

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We saw this Apple centre in Singapore, and how this handcrafted, stone staircase creates a nice volume within that we saw.

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We saw some interesting furniture, somewhere its stone, somewhere its composite material and we saw this contemporary examples these are very few I mean they could be more. There is another very interesting project that we did not see in the module. So,

it is by studio lotus and they have done this very famous project RAAS, where they have used the stone for you know creating folding windows.

So, the stone that is used is light and it further it is made light by creating punctures, and then it could be you know used for making folding windows. If you want to see and know more about it is a very interesting project. So, please read about it.

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So, we saw all these modules in the last week, and next time and when we are going to meet, we are going to talk about overview of the craft sector today. And will we will try to understand this sector in a brief overview.

References for your benefit.

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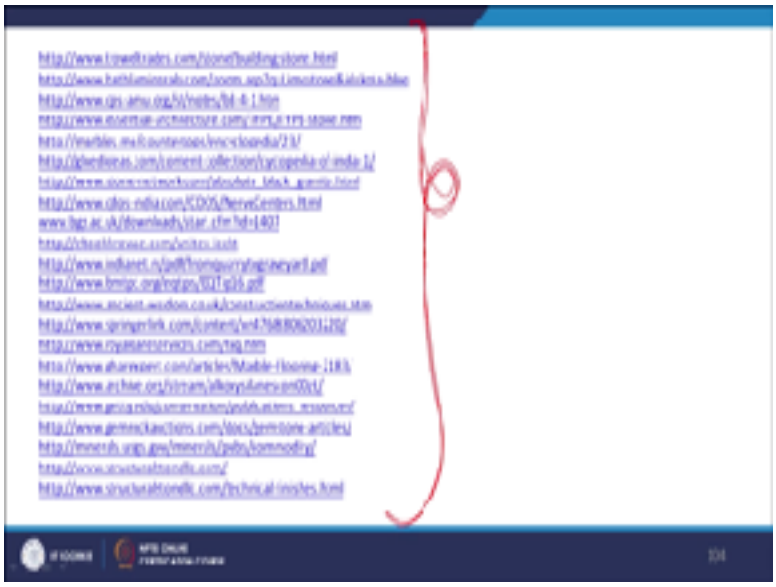

This is particularly for the stone related lecture that we had.

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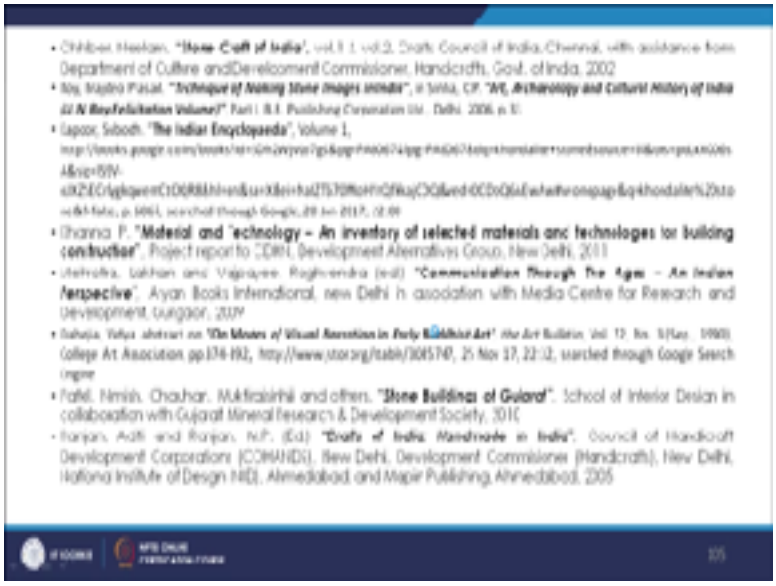

And then there are some more books which we have been seeing all through, and which are also important for this module.

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This is a sort of a compilation of most of them,

some more.

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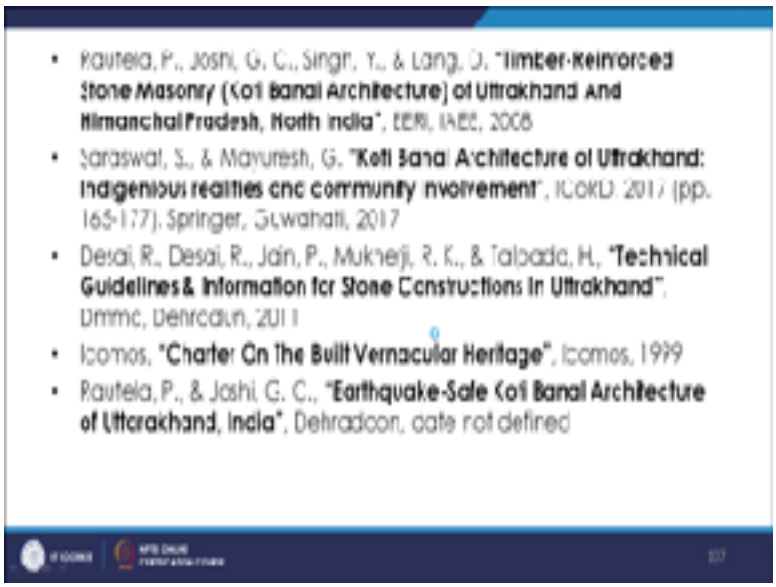

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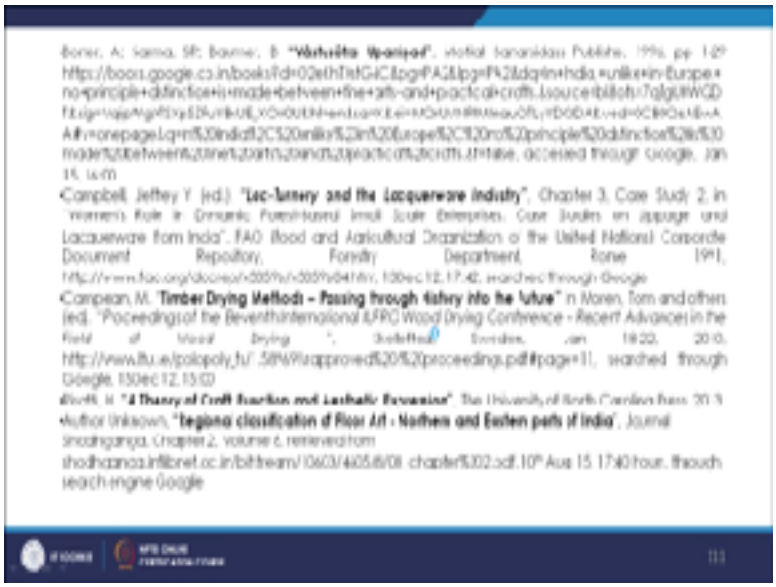

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Thank you.