Indian Institute of Technology Kanpur
National Programme on Technology Enhanced Learning (NPTEL)
Course Title
Engineering Graphics

Lecture – 02
Geometric Constructions-Part I

by
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Next part is your geometric constructions.

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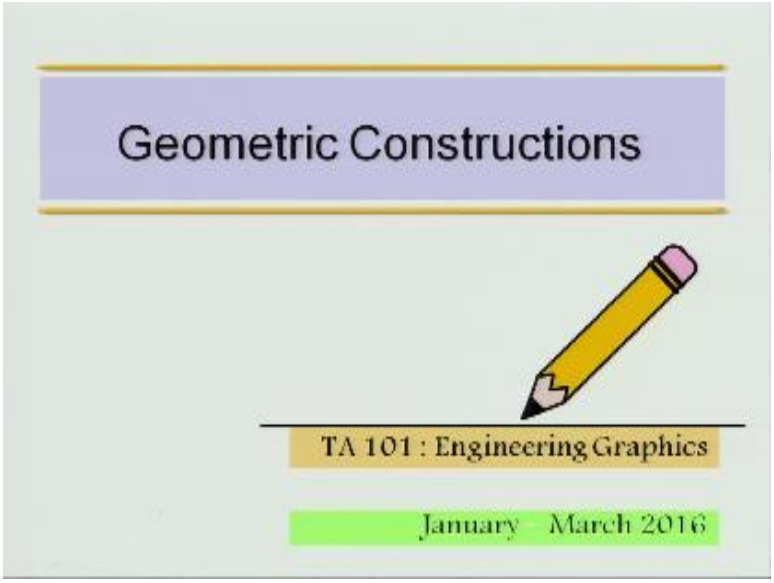

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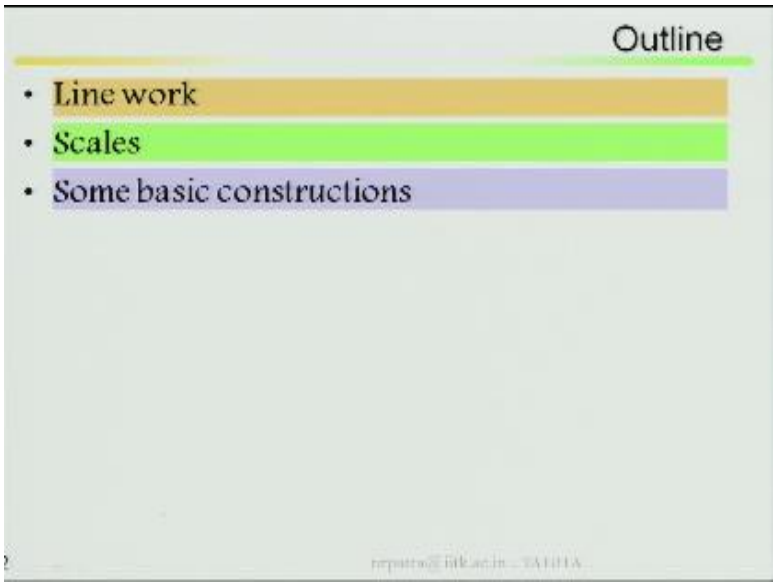

So line work, scale, some basic constructions.

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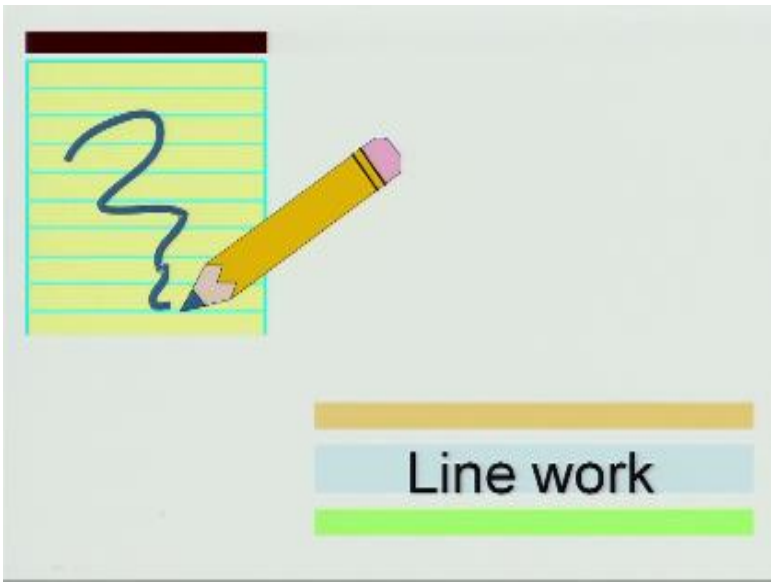

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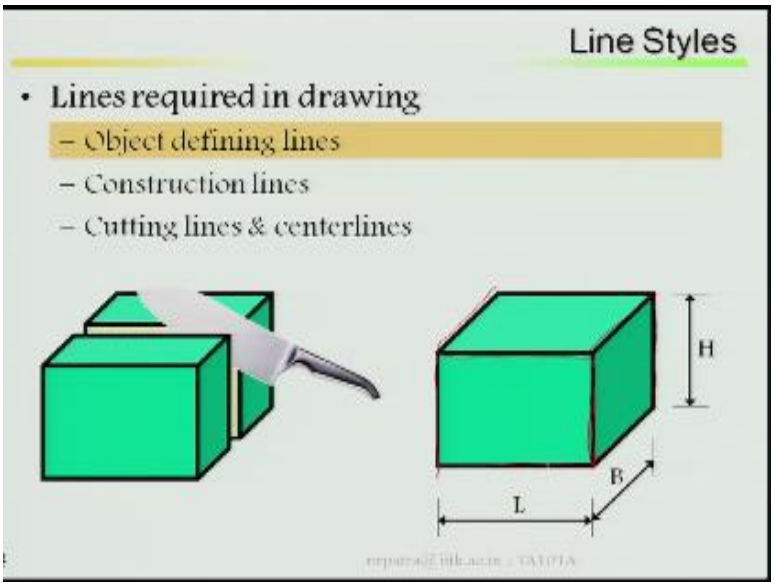

Lines required in drawing object defining lines if this is my object, so definitely these lines, these will define completely the object, that means length, breath and height, then construction lines, construction lines these are all your construction lines, cutting lines and center lines if required, see this is the object defining these lines complete object. Now I just cut it in two pieces.

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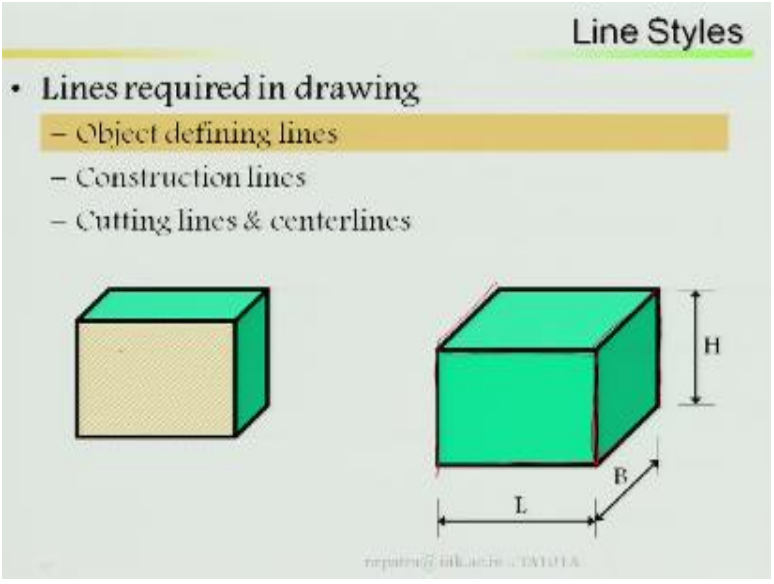

Now once it cut it how it looks, now this is your object then it has been cut it and this is your cutting lines or you can say that it has been cut in between so it has been marked with your cutting lines.

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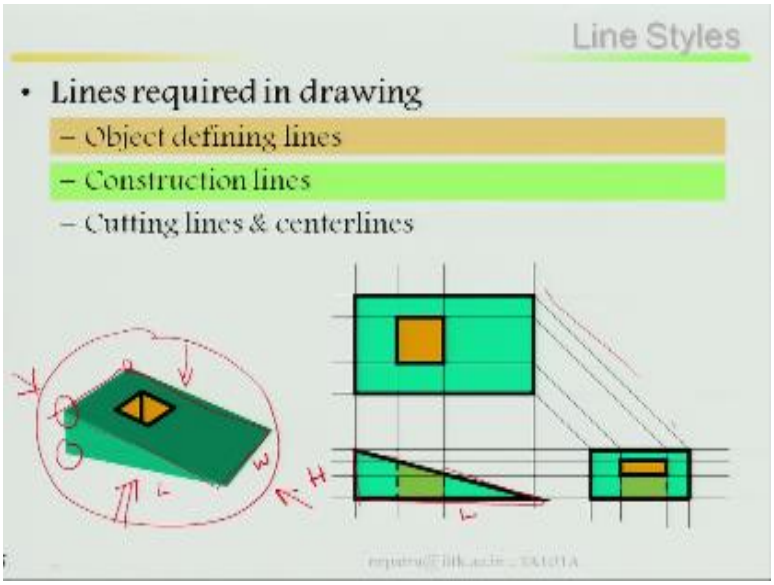

Similarly lines if you look at here these are all your projections lines, it has been projected back. If I say this is my top view, if this is the object this is my top view, and this is the front view because front view it will come in third angle as well as first angle projections, if this is the object if I look at the object from this side what I will look from the front, suppose if, if I looked at this object from this side that means front view means, that means I can visualize only this because this point and this point, this will be going to be merged and this is going to be merged.

So what will happen, now if you look at this is my front view, so in this front view if this is my length, this is my width, this is my height, so definitely this will come your length and this is definitely it will come height, length, height then if I look at it from the top from here, so this will be top view. Now how it looks, that means this point and this point, this point and this point it is going to completely merged, if I merge it that means it will look like only one, only one in between this.

Now this is your front view, this is your top view if I want to draw the side view, for example side view it may be either this side either from the left hand side or from the right hand side depending upon this why, where you are viewing this object. The moment you are seeing from one of the side then it will be coming a side view, side view will automatically come back from projects and lines from the two views that means one is your.

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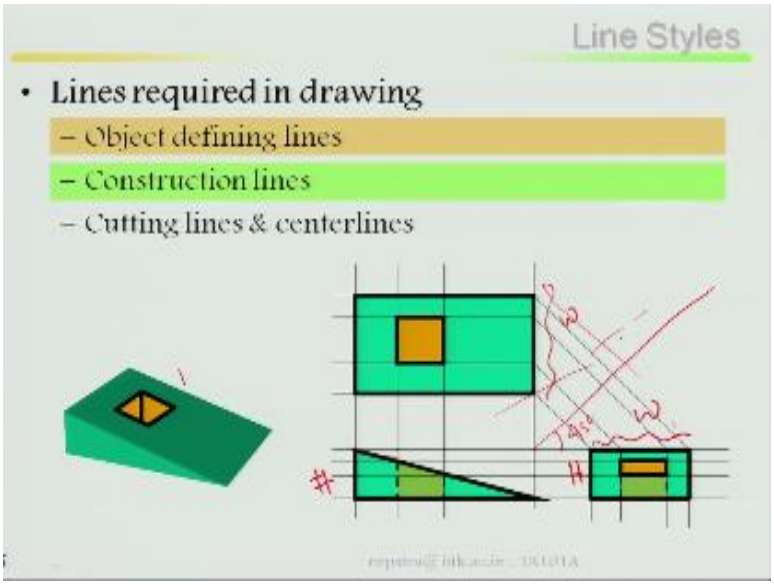

One is your front view, one is your front view other your top view, here making a 45 degree angle it has to be projected back, so this line particularly this is my, in this case if this is my top view and this is my width, so this part will be my width, if this is the height, this is the height this will be height. So these are all construction lines that means I construct it, lines has been constructed. This way, these are the line requires that means one line is defining your object, that means that is called object lines. Second line is your construction lines, that means you project it or you start your work with by means of projections then this is called your construction lines. Then third one is your cutting lines or center lines.

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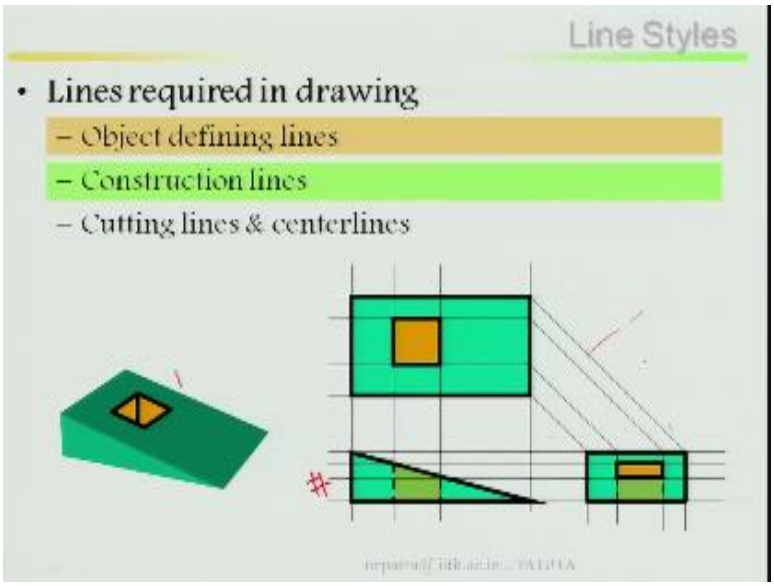

Where your center lines comes into picture.

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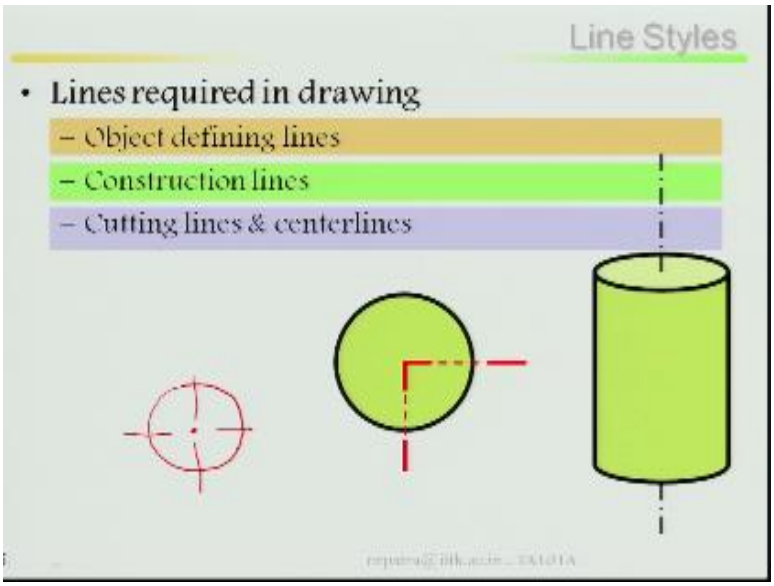

Look at here, there is a circle, there is a circle here so the moment there is a circle if this is the symbol I put it here, now what it looks, there is a circle and there is a center line, here is a center

line, now how do I write, I can see it this in this way, this in this way, this shows that this is a center line of the circle, this is the center line of the circle. So these are the ways how we can show these lines required basically for your constructions defining object and cutting lines and center lines.

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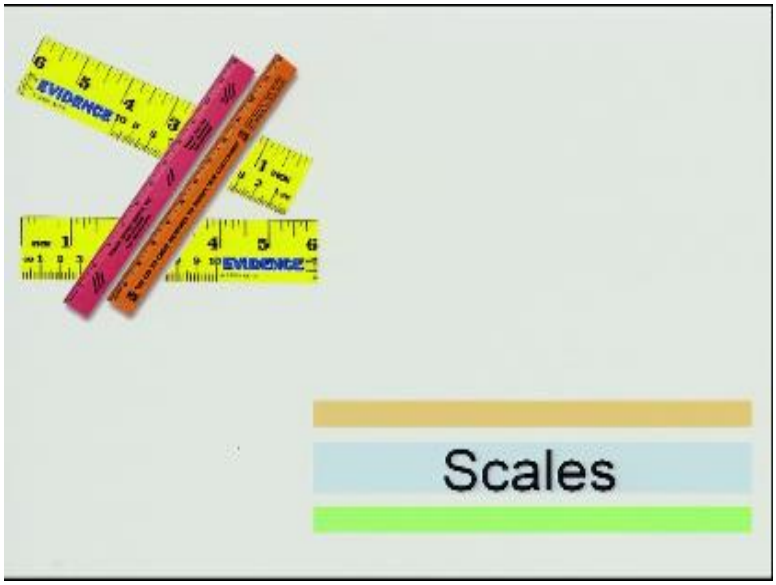

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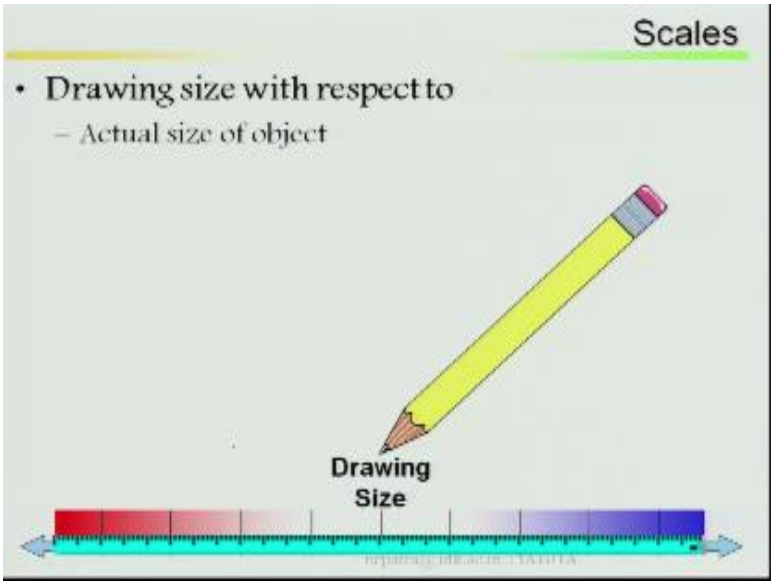

Scales are discussed earlier also.

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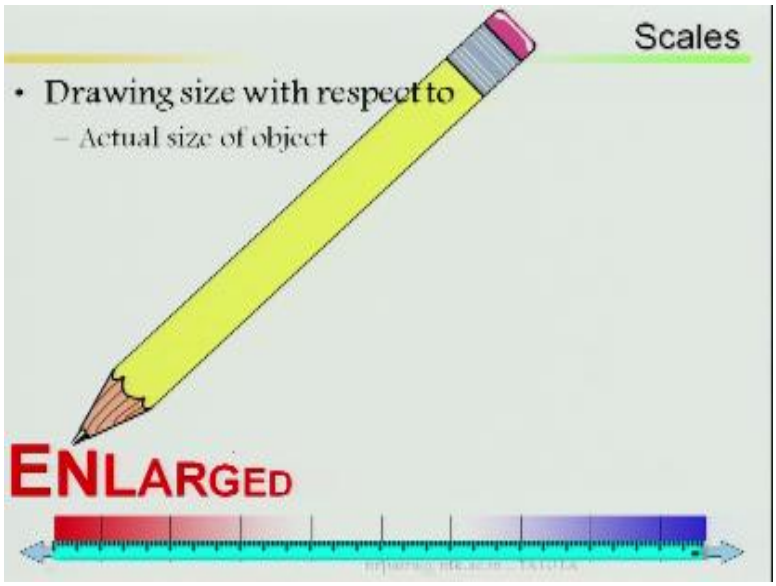

So there is no need to discuss it, but just a review, enlarge scales.

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And this is your reduced scales, full scale is 1:1, reduced scale is 1:A, A is greater than 1, enlarged scale is A is less than 1.0, so 1 is drawing A is your actual, 1 is drawing A is your actual.

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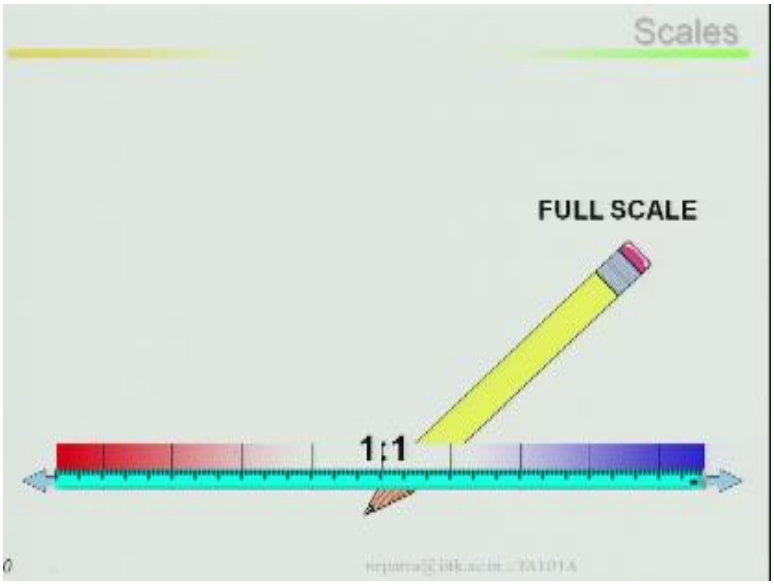

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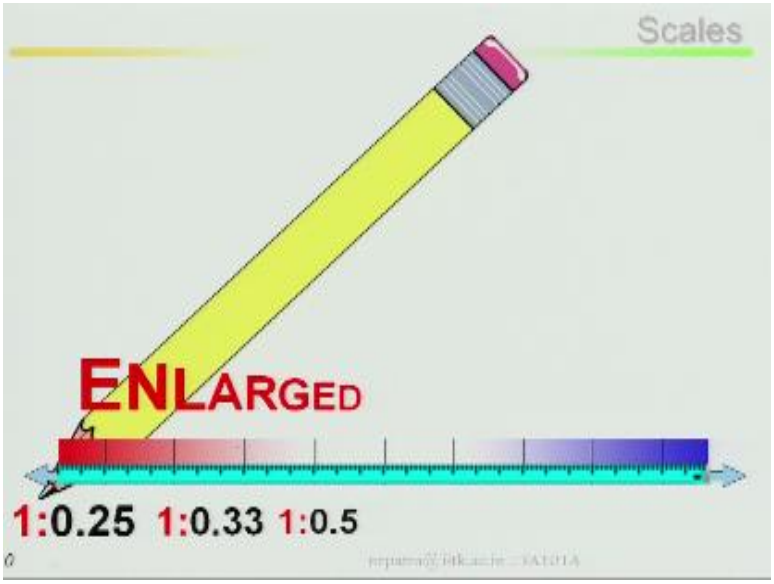

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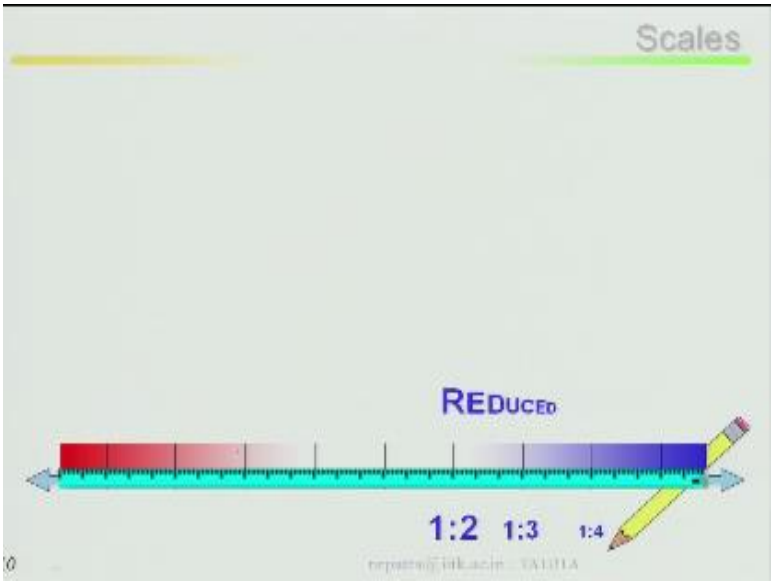

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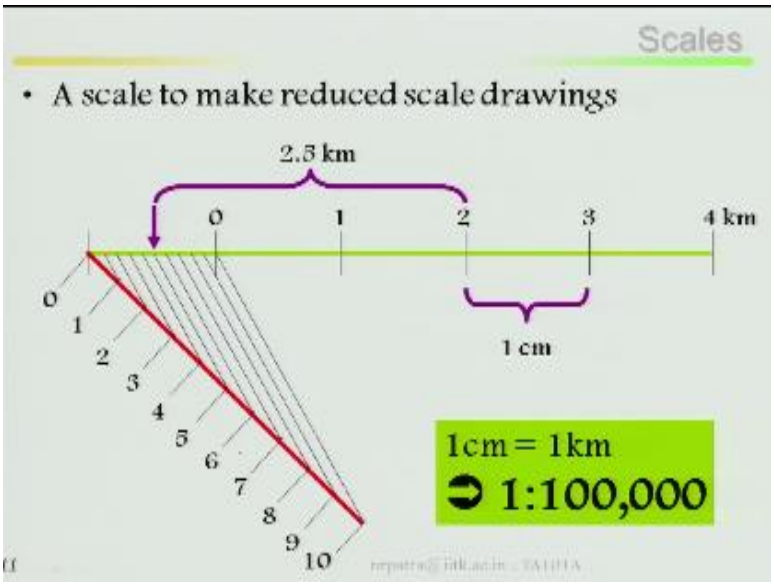

A scale to make reduce scale drawing, for example if I say 1cm is equal to 1km, then scale will be 1:100,000, 1:100,000 this represents 1cm is equal to 1 km, then from there you can measure your 2.5 kilometer, then you can replace it back, appropriate scale with your drawing sheet.

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Full scales hand held object keys, reduced scale large object you want to produce your entire building a large object in a two-dimensional plane, in a two dimensional plane, then house, cities, countries these are all your large objects, you want to put it as in a reduced scale in a small piece of paper or maybe a drawing sheet. Full scale, full scale means small key, phones, small pencil box, enlarge scale.

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Enlarge scale means you have to enlarge your scales that means it may be a small one, but you have to show in a drawing sheet in enlarge be.

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I will stop it here, next class basic features or basic geometric constructions. I will explain before I go to main drawing parts, main engineering graphics that is your orthographic projections, it will start after this your basic geometyr constructions.

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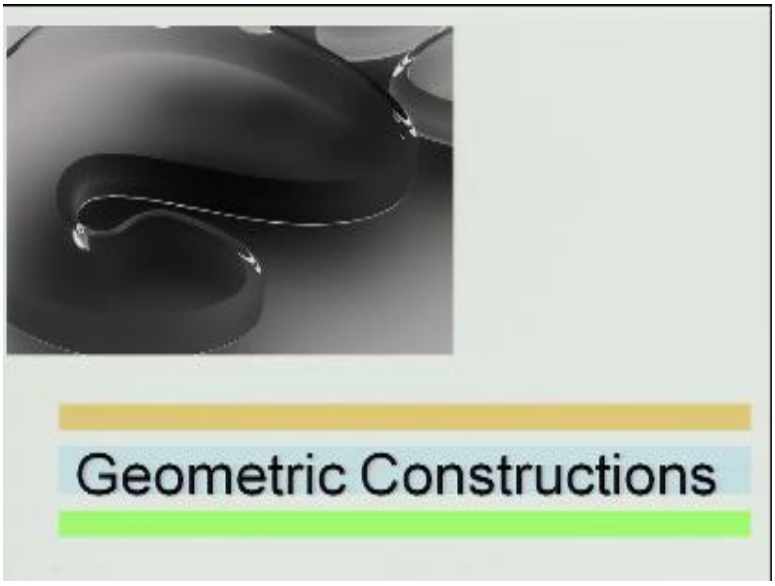

Thank you.

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