

**Indian Institute of Technology Kanpur**

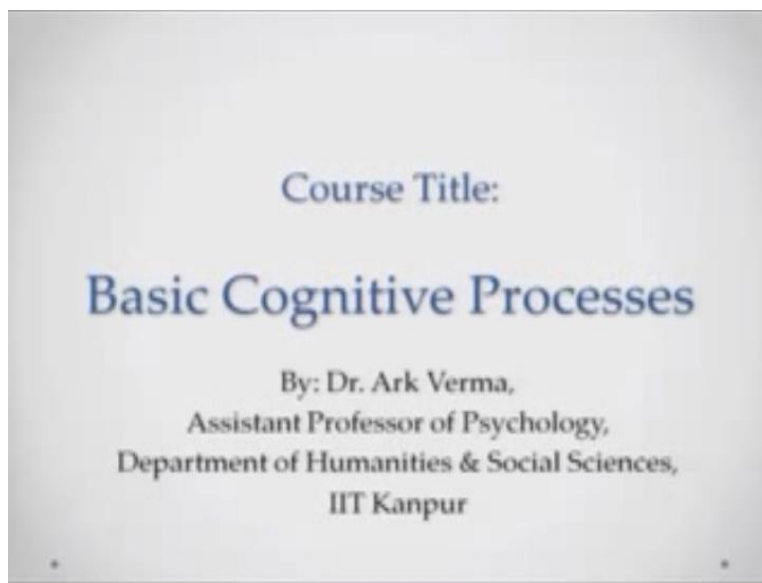
**National Programme on Technology Enhanced Learning (NPTEL)**

**Course Title  
Basic Cognitive Processes**

**Lecture-13  
Sensation and Perception**

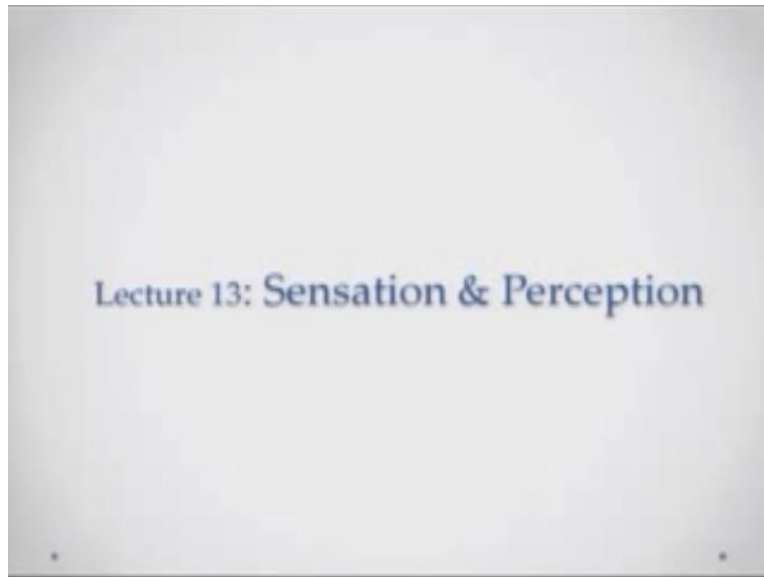
**By  
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Hello and welcome to the course called basic cognitive processes I am Dr. Ark Verma from IIT Kanpur.

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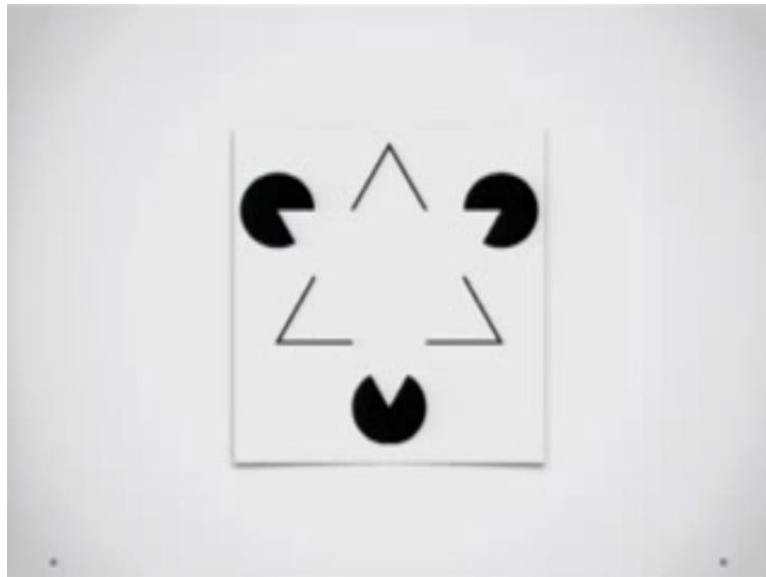
The topic of today is lecture is a sensation in perception in today is lecture we will talk about how information received by senses is transduced into meaningful information that we can act about and that we can you know make use of I start with a series of pictures and I just want you to look at them and tell me what you or think over it what you see in there.

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What do you see here you see that there is fat lady standing in front of a glass and in that glass she is actually looking at herself as she has grown much slimmer now is this a trick or is this what the lady is actually seeing or let us say at least this is what we are seeing from that picture let us look at some other pictures.

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If I ask you which of the two lines is larger the line at the top or line at the bottom some of you might give half different answers just to tell you that both of these lines are exactly equal in length do you also see a white triangle superimposed on the black lines triangle here I also see that but the thing is that there is no white triangle in this figure it is just we were actually seeing that do you see a bridge or a fleet of ships here.

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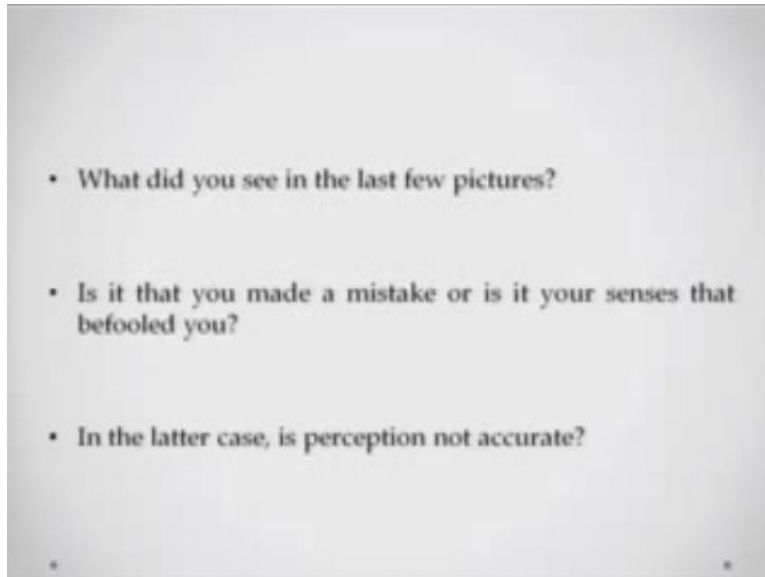
I guess I see a bridge but if I focus I see a fleet of ships as well.

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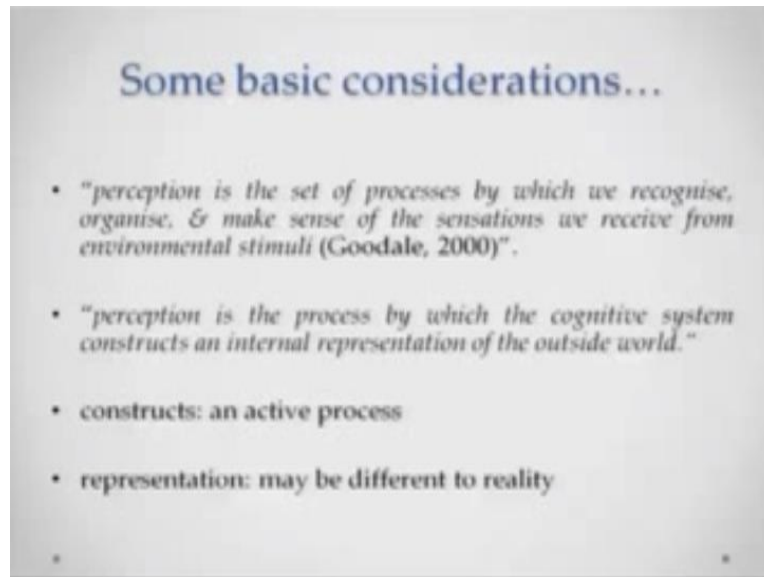
What is this is it a rabbit or a bird.

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Now if you notice these pictures you probably saw something which was probably not there in the pictures okay why did that happen were you making a mistake or is it your senses playing tricks on you this is exactly what we you know want to study when user when we really want to you know investigate what perceptual processes are like is perception and accurate process does it really reflect what the world holds or does your senses or does your sensory modality give you the exact and accurate picture of whatever it receives.

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Let us delve deeper into this question by talking about what perception is perception is the set of processes by which we recognize organize and make sense of the sensations we receive from environmental stimuli now if you notice this definition makes a case of difference between perception and sensation perception is what we are actually doing to sensation what is actually happening to whatever sensations or sensory input.

That we are getting from the different senses hold on to this definition let us talk about another definition another definition of perception says that perception is the process by which the cognitive system constructs an internal representation of the outside world what am I trying to say here I am trying to tell you that there is a lot of information that your senses receive from the outside world to interact with or to be able to use that information.

You have to create a replica or a representation of that information inside your head perception is the process that helps you do so okay so if you notice in these two definitions we are actually talking about two key components of perception first is that perception is a constructive active process we are actually actively engaged with the information that we are receiving the second is perception is about representation okay.

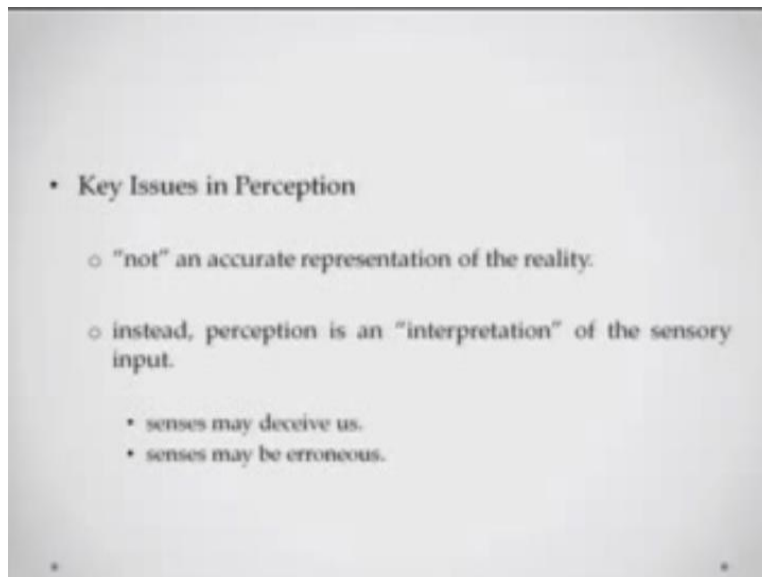


It might be different from reality it is the representation of the reality which your senses give you say for example if you talk about people who have myopia or hyper Petrolia know people who have powers in their eyes you know the ones spectacles like me now is it that the world has changed and that we cannot see it.

It is probably our eyes have changed in a manner that we do not see you know the exact thing that is out there okay that that is one of the ways you could say that sensory information cannot always be correct if you move around the particular room and you are looking at an object from different angles the information that you receive from that object is very different from each of those angles.

But what you see is the same object very stable and not changing that is also what is achieved via the process of perception in this series of lectures on transition and perception we will talk about how are these processes achieved and how does perception really shape your view of the world now there could be some key issues in perception one of them is that perception may or may not be an accurate representation of the reality okay.

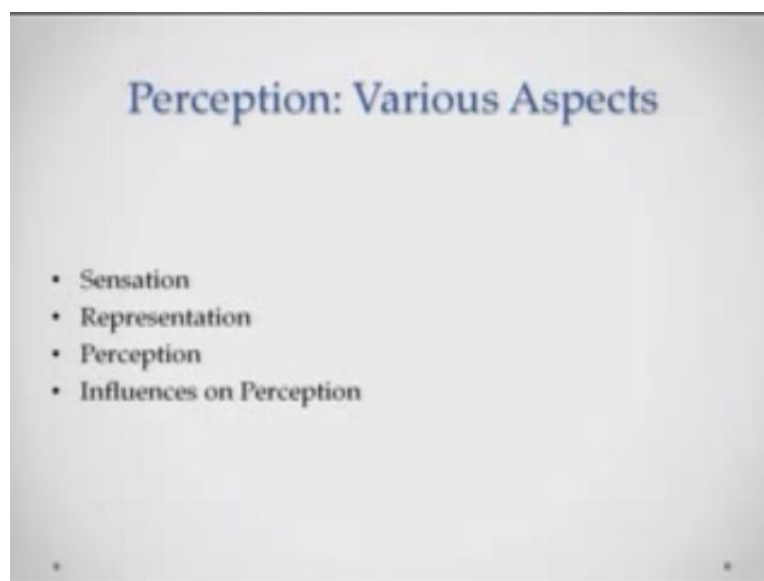
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As you saw in the pictures just presented you seem something but that was probably not really there instead perception is actually an interpretation of the sensory input as I was saying you getting some sensory input and your brain or your mind is interpreting that sensory input in a particular fashion which is what you, you know can use or which is what is available to you to act upon or to think about and that is what perception is actually about.

So there are two things that you know sometimes your senses may deceive you say for example for that lady which I showed you who is probably drunk and so was looking at herself I also have become very thin drugs and different kinds of these things you know to have that kind of an effect on people also senses may be erroneous sometimes say for example the example of our eye is not functioning properly you know the problem could be with the instrument or with the senses which is getting the information from the outside world to the inside world.

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That is your find space so what is what are the you know different stages in perception what are the different aspects of perceptual processes there are at least four of them which we will talk about the first is sensation let us talk about how all of this story really starts what is sensation what is sensory input how do we make sense of sensory input the second is how are these

representations formed from sensory input you know to the point that we can actually make use of this information to the point.

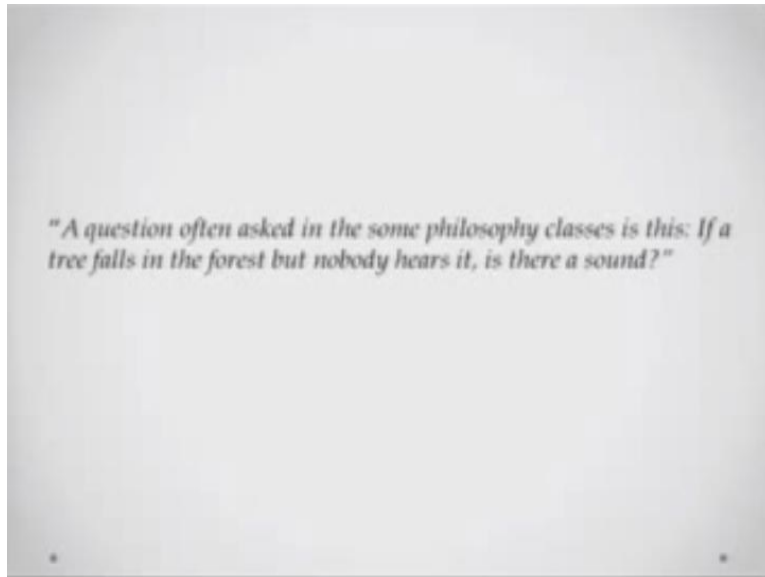
We can organize this information the third aspect itself is perception which we already talked about how do you organize and you know arrange the data or arrange the information coming in from the world we also talked about as a final saying you know a section of this chapter about variety of influences on perception what are the kinds of influences you know that impact how you see the world.

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So with these four topics in mind this is how you can organize this series of lecture on sensation and perceptions now let us talk about the first part sensation.

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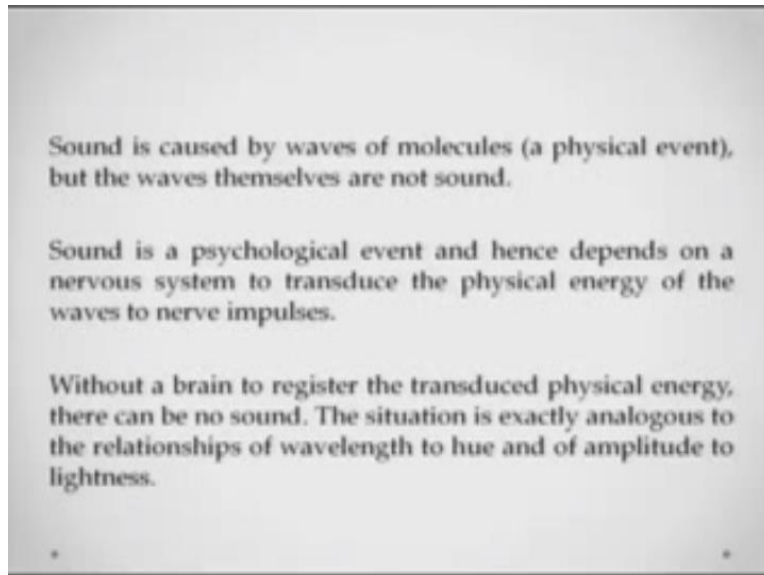
You know a question often asked in some philosophy classes is that if a tree falls in a forest and there is nobody to hear it is there the sounds produced now you can think of it over and over again and you might have difference of opinion.

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But the answer I am going to give you is that no there is no sound produced but you say that you know the tree has fallen that is displacement there is some potential energy and so definitely there must be something that has happened there.

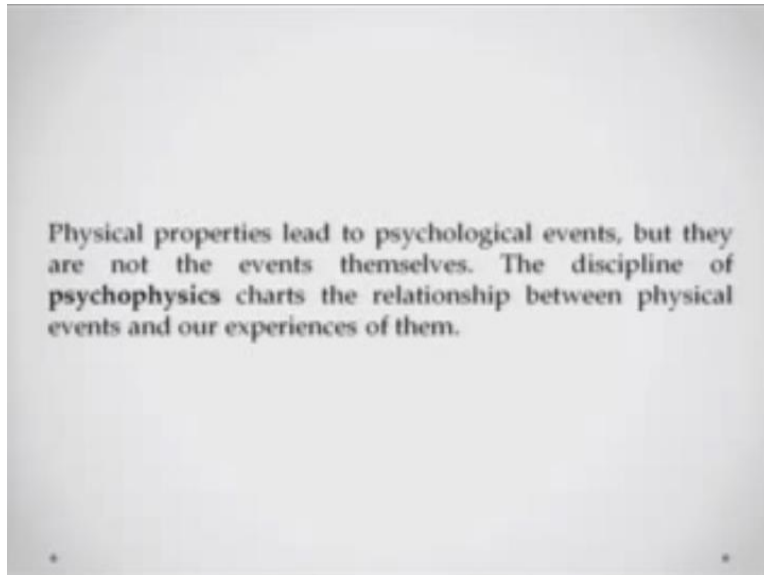
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Let us you know look at this unfeeling bit more detail what is sound, sound is actually caused by a wave of molecules but the waves themselves are not sound okay sound is actually a psychological event and it depends on the nervous system the brain to transduce this waves to the transducer physical energy of the waves- a nerve impulse that is generated in your brain that gives you the experience of sound so you need the brain to have a sound you somebody to for the sound to actually have existed.

Otherwise there will be just random waves which are generated and you know then finally dissipate over without a brain to register the transduced physical energy there can be no sound the situation is exactly analogous to the relationship of wavelengths to the you and of amplitude to lightness if there is nothing if there is no object to interpret this wavelength.

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You will never have this concept of different use or there is nothing to decipher this amplitude or you know transduce these amplitudes to lightness you will not have bright or dim lights okay so this with this in background let us try and talk more about sensation so physical properties lead to psychological events but they are not the events themselves.

The discipline of psychophysics actually charts the relationship between physical events and science psychological events that is our experience of these physical events so psychophysics is basically the field which will help you really deal with sensations which will help you to navigate sensations and to understand how sensations are converted into psychological events like experience okay thank you.

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