Discrete Mathematics

Functions

One-One Function - Example 1

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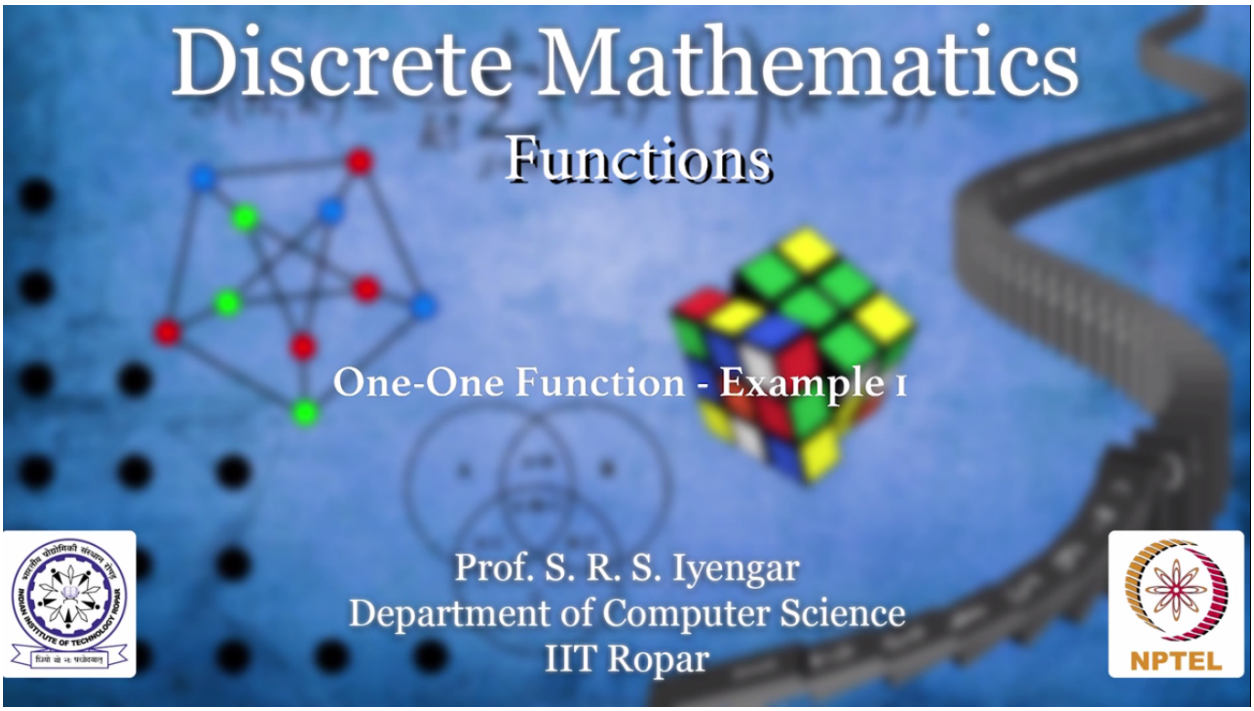
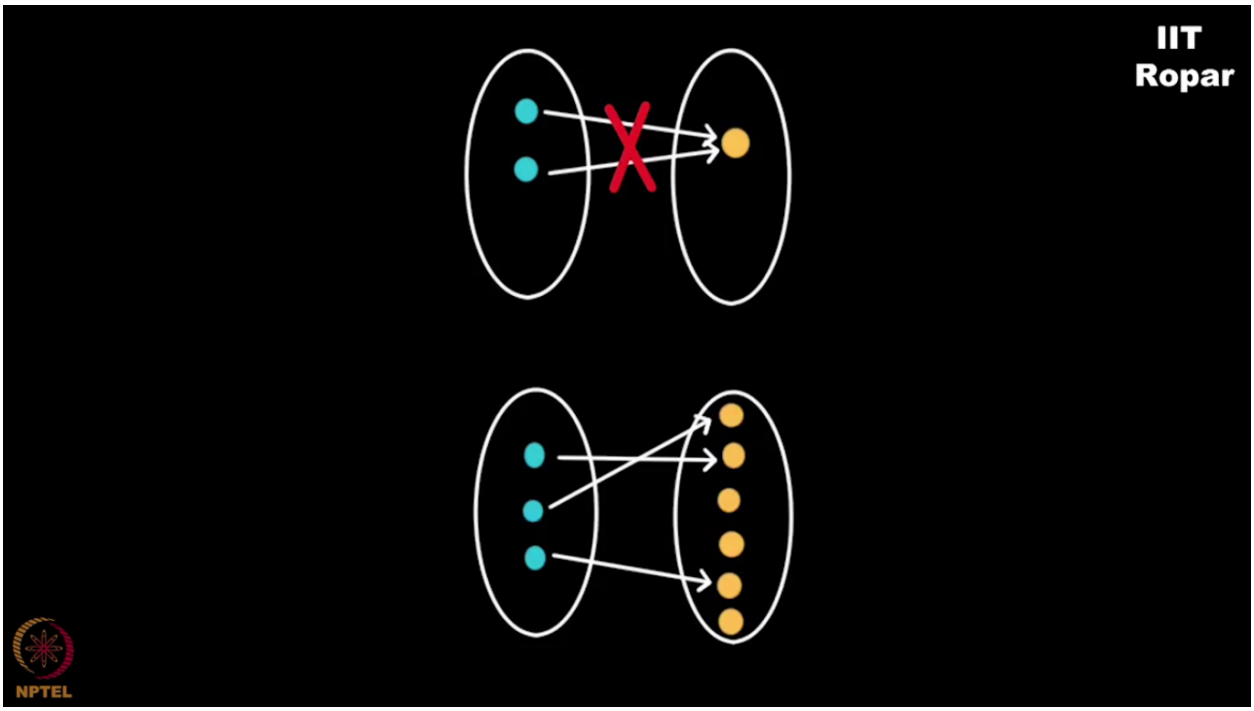


We saw a very intuitive definition of what is one-one function. But we will see more of what makes a one-one function. We will go very slowly. In fact there is a lot of things that one can do on one-one functions. Okay.

So what is one-one function? Let me take an example. Consider a function f from the domain of all positive integers, co-domain of again positive integers defined by f of x is equal to x to the 3. You see 1 goes to 1, 2 goes to 8 and 3 goes to 27, 4 goes to 64 and so on. Now just observe this. Here is a very basic question.

Will you ever see a structure like this? You will never see two elements going to the same element. Now that's not possible at all because a cube of a number is actually unique. You cannot have two numbers giving you the same answer. Please note a word of advice whenever we discuss functions spend a couple of minutes, be very clear with what is a domain and co-domain. Whatever we say holds good only for the given domain and co-domain. And not always.



So the domain here is set of all integers, positive integers and the co-domain here is again the same set of all positive integers. All I am saying is you will not see two elements going to the same element. That is what we mean by one-one and one element here goes to one element here only. However, there can be some elements which may not have anything coming and mapping them.