Structural Reliability
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Lecture –84
History Definition and Scope (Part - 02)

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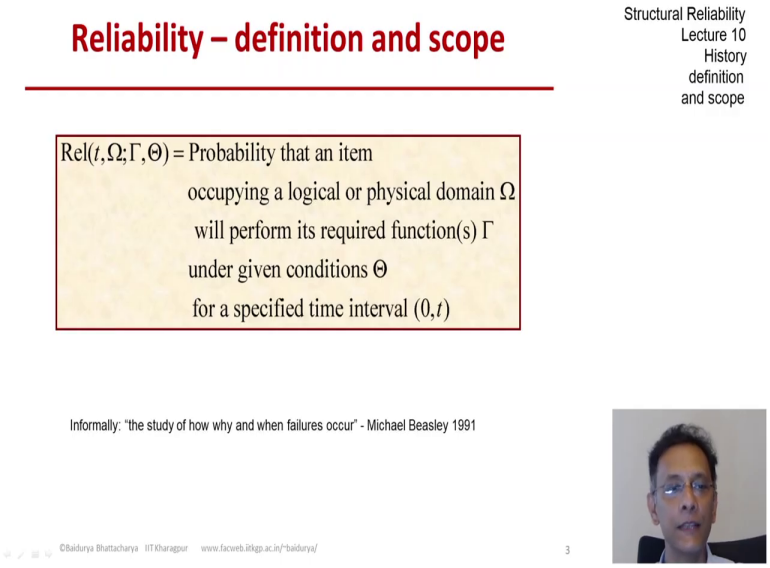

Let us start by defining the term reliability. As you see on your screen it is a rather long definition. So, let us pass this one by one first of all we see that it is a probability which means that it must abide by and be able to take advantage of all the rules and results from probability theory. It can also be estimated by sampling, sampling in terms of observations are done by experiments or multicolored simulations that we discussed briefly last week.

Next there is a time aspect. So, this time could be variously called the lifetime, the service time or some kind of reference period. It is always there even if it is implicit there is always a time aspect whenever we talk about reliability. Next the item that we are talking about it must occupy a physical or a logical domain. If it is a structure its components are physically connected to each other which are quite obvious to us.

But the system may entirely reside in the logical domain. So, we should be equally able to define the reliability of such a logically connected item. Finally there must be fair play you cannot ask an item to do what it was not intended for. So, that is where the functions gamma the required functions and the given conditions theta they come in the picture or as Beasley put it very succinctly that reliability is simply the study of how why and when failures occur.