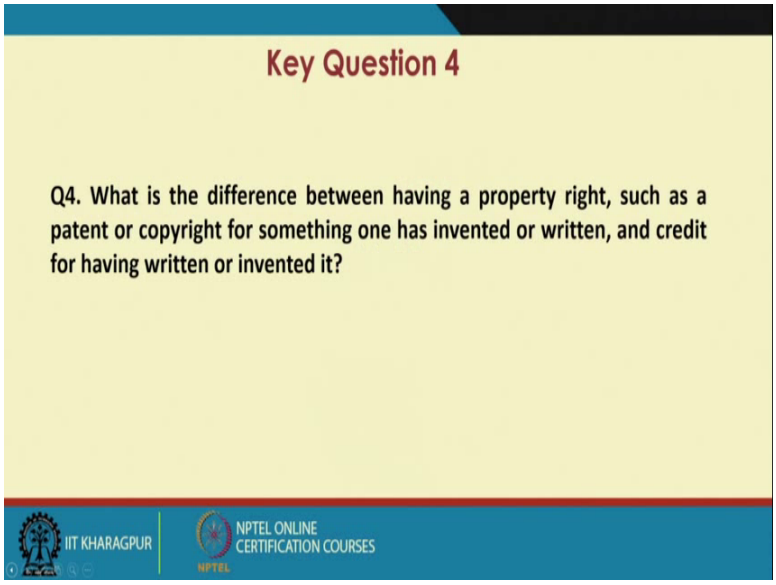
Ethics in Engineering Practice
Prof. Susmita Mukhopadhyay
Vinod Gupta School of Management
Indian Institute of Technology, Kharagpur

Lecture – 36
Key Questions – relating to Rights and Responsibilities regarding Intellectual Property rights (Contd.)

Welcome back to the session. We were discussing on the Key Questions of Intellectual Property Rights and some critical questions about it the roles and responsibilities of the engineers regarding it.

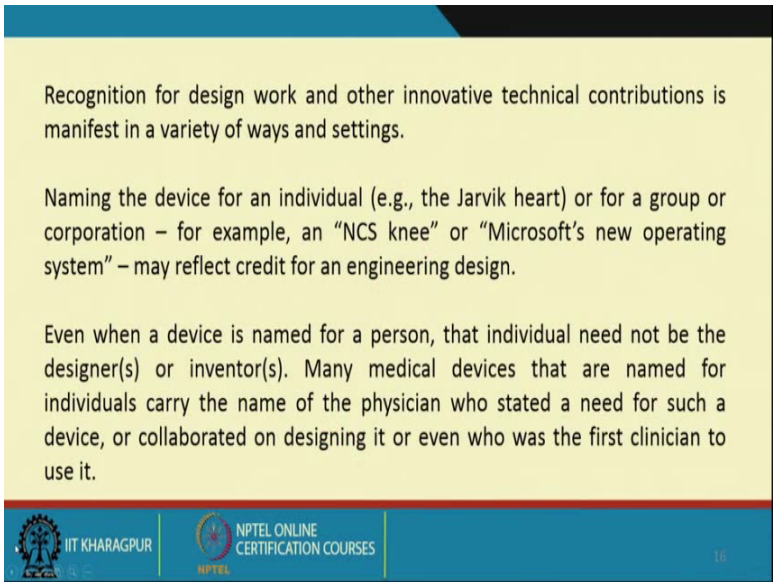
(Refer Slide Time: 00:33)



In today's key question we are going to focus on what is the difference between having a property right such as, a patent or a copyright for something one has invented, or written, and credit for having invented or written it. So, there is like we want to see like, if there is any difference between these two things. Early we will discuss like, copyright can be like, inherited copyright can be transferred also.

So, could be there like the patent after certain years it becomes open. So, is there any difference between like having a property right for patent and copyright and the difference with the credit for someone who has invented or written something? Let us see.

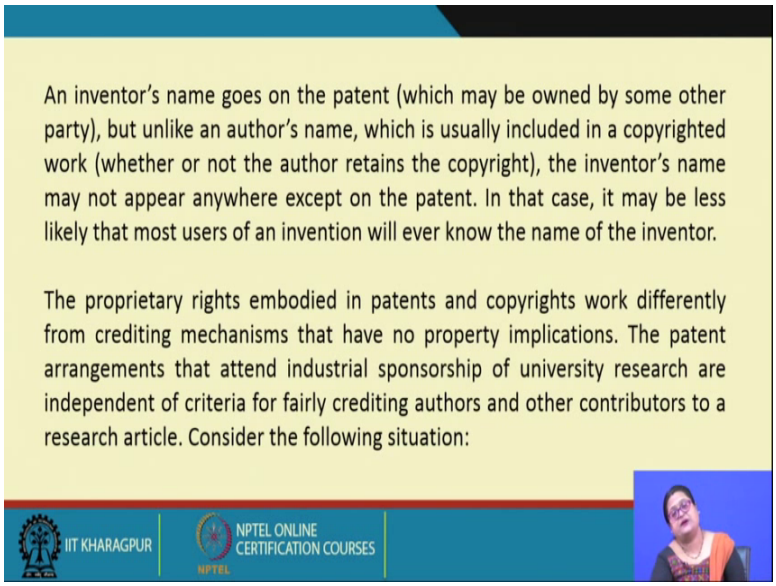
(Refer Slide Time: 01:25)



So, what we find is that recognition for a; so, what we find is that, recognition for a design work and other innovative technical contributions, is manifest in a variety of ways and settings. Suppose like naming a device for an individual, like Jarvik heart or for a group or corporation, like NCS knee, Microsoft's new operating system. We reflect the credit for some engineering design. So, even when like some device is named for a person; the particular individual need not be the designer or the inventor.

So, it could be the name of someone who first felt the need to develop, such a device or to collaborate or designing it. So or the person who was the first clinician to use it; it is out of respect also. So, having a device for someone; under someone's name does not always mean, like the person has invented it. It could be an act of respect also shown to that particular person.

(Refer Slide Time: 03:05)



So, when an inventor's names goes like; inventors name goes on the patent. So, which may be owned by some other party, but unlike an author's name which is included in a copyrighted work; so, whether or not the person retains the author retains the copyright; the inventors name may or may not appear anywhere except on the patent. So, that is the slight difference like when; there is a copyright, the author's name is included in the copyright.

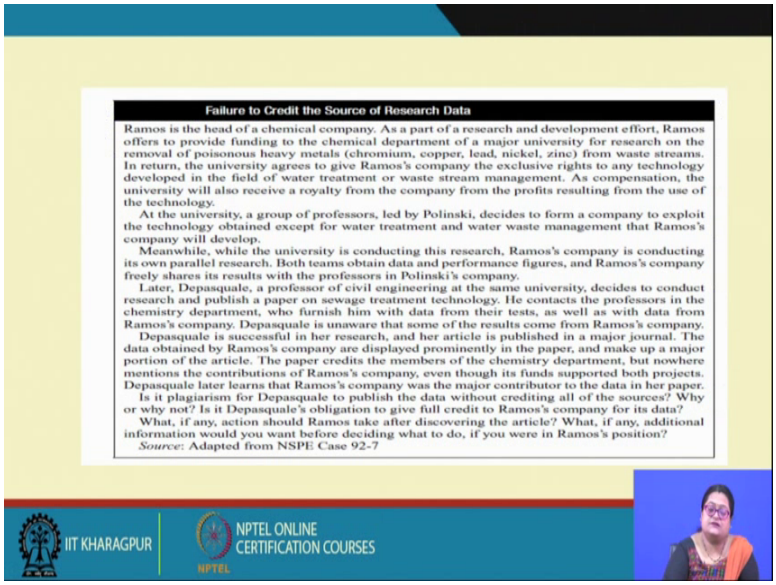
And even if it does not remain with the original author, it gets transferred. So, the copy the author's name remains with them; it is like the piece of work, the writings etcetera. But for the design part like it is only with the; for the particular inventor, it is with the patent. It may be the case, like the many users the common people, the many users of that invention may not even know the inventors name.

So, what happens like the proprietary rights embodied in patents and copyrights work differently. So, from crediting mechanisms, that has; may have no property implications. The patent arrangements that attend industrial sponsorship of university research are independent of criteria for fairly crediting authors and other contributors to a research article.

So, when you are talking of patent, which is maybe an you know like the arrangement between the industry sponsoring some research work and so, that I have an independent criteria; rather than crediting the authors further for the copyrights or all. So, for the

research article so, these have 2 different implications. So, that will become more evident like when we talk of the following situation.

(Refer Slide Time: 06:06)



So, Failure to Credit the Source of Research Data Ramos is the head of a chemical company. As a part of a research and development effort, Ramos offers to provide funding to the chemical department of a major university for research on the removal of poisonous heavy metals like chromium, copper, lead, nickel, zinc from waste streams. In return, the university agrees to give Ramos's company the exclusive rights to any technology developed in the field of water treatment or waste stream management. As compensation, the university will also receive a royalty from the company from the profits resulting from the use of the technology.

So, that we find was the understanding between the Ramos's company and the university. At the university, a group of professors, led by Polinski, decides to form a company to exploit the technology obtained, except for water treatment and water waste management that Ramos's company will develop.

Meanwhile, while the universe it is conducting this research, Ramos's companies conducting its own parallel research. Both teams obtain in data performance figures, and Ramos's company freely shares its results with the professors in Polinski's company. Later, Depasquale, a professor of civil engineering at the same university, decides to conduct research and publish a paper on sewerage treatment technology; sewage

treatment technology. He contacts the professors in the chemistry department, who furnish him with data from their tests, as well as with data from Ramos's company.

Depasquale is unaware that some of the results come from Ramos's company. Depasquale is successful in her research, and her article is published in a major journal. The data obtained by Ramos's company are displayed prominently in the paper, and make up a major portion of the article. The paper credits the members of the chemistry department, but nowhere mentions the contributions of Ramos's company, even though its funds supported both projects.

Depasquale later learns that Ramos's company was the major contributor to the data in her paper. Is it plagiarism for Depasquale to publish the data without crediting all of the sources? Why or why not? Is it Depasquale's obligation to give full credit to Ramos's company for its data? What, if any, action should Ramos take after discovering the article? What, if any, additional information would you want before deciding, what to do if you were in Ramos's position?

So, if this is the case, let us see how it goes through because there are 2 3 issues in it. First what we find over here. So, Ramos is the head of the chemical company. So, as a part of his research what they have done, they offers to provide funding to the chemical department of a major university and in return like for the research on removal of poisonous heavy materials, metals from waste streams and the university agrees to give Ramos's company the exclusive right. When you are talking of these exclusive rights of any technology developed in the field we are talking of like, they will give them maybe though they this Ramos's company will be able to patent it also because that is the understanding between the company and the like university.

So, side by side what we find is Polinski, the professors count they also decide to form a company and to exploit the technology, except for water treatment because that is what they have got an understanding with Ramos. And this company going to; company will be developed. So, what we find over here? Two things even if the chemical engineering department is developing the technology, they are not taking the credit of it. The credit goes to the Ramos's company. They because, they have funded the research for it; and again when we find like Polinski's company they have developed some company for use the technology, for not for water treatment, for something else.

So, what happens like meanwhile, like both the when they share the data with each other then when Depasquale asks for the data from this civil engineering department. So, when it comes to like sharing the data within Depasquale; it is responsibility of the chemical engineering department, chemical department professors like, we are not very sure over here that, whether like they have asked the Ramos's company for permission before sharing their data with Depasquale. Because whatever Ramos's company have shared, freely shared the data with the Polinski's company was for the purpose of the research that, maybe they were collaborating for.

But before sharing this data with others like, maybe of the same university, but from a different department, working on something a different purpose. Whether they were like taking the permission of Ramos's company or not is not mentioned over here, but that is an essential part like whether this can be done.

Now, before we have discussed the cases also, like whether like in which cases it is not required for a company to take the permission of the copyright owner and maybe if it is for education purpose only and for academic purpose only. But here we do not know exactly for what purpose like Depasquale will be using her. It is only for the purpose of a research paper or it will have some greater financial implication lateral also in terms of money making. So, these points have not been mentioned in this particular case still here. So, before sharing this data, this like audit should have been done. So, what you find over here?

So, because Depasquale is unaware of the result which is coming from the Ramos's company, she has not like credited for this, mentioned the contribution of Ramos's company. Here like to in her defense we can tell, like though the data was claimed to be the Ramos's company, but again the actually, the civil the chemical engineers of chemical department professors also, had contribution in this data. And like then how it comes to be the Ramos's company? But that will not be a very substantial argument because what we find that Ramos's company we are doing parallel work regarding this thing and they were, like shared this result with the professor say Polinski's company.

So, it was and also, it was the major sponsor it is a fund was there from this 2 like from the Ramos's company. So, what we find like it would have been a more responsible act and part of Depasquale to like find out whether the whatever data has been shared by the

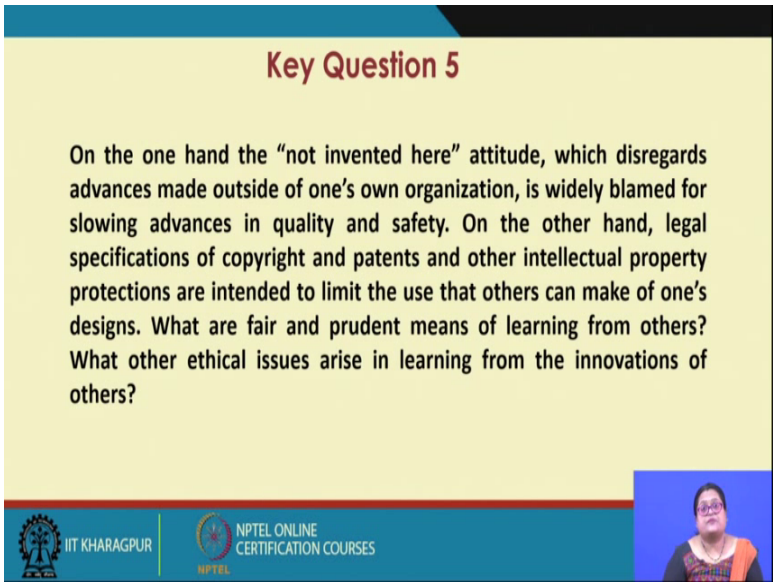
department like the chemical department was a part of their research only. Because it is not that maybe we do not know here. Like whether Depasquale knew like the same paper; like whether she was knowledgeable about the fact like the chemical engineering department was doing some collaborative research with the Ramos's company.

If it was known then, it is a part of the Depasquale's responsibility to find out whether all the data where from there to like, investigate further into it was there all the data was from the chemical department only. Or they have shared with some like Ramos's data also. And in that case, what was the part of the responsibility of Depasquale? And like because it is required that, the original like who have collected the data and worked on it, gets a proper credit for the contribution.

So, these things were not very clear from here. But definitely like we need to here it is talking of the plagiarism for Depasquale. So, to publish the data without crediting all of the sources; we have to see the implication of it and if you want to really understand the total implication of it, we have to like go through the level of ignorance's also. But after all, like when we are starting with any kind of work; so, it is required, like we are proactive enough to inquire into every specific facets of it so that like when we later go on developing on it, it is not taken to be as like your plagiarism.

If now, plagiarism itself has its own condition, like how much of it has of it is similar? Whether and what we find over here is the you know like the medial portion, like this Ramos's come data forms is maybe, from some major portion of the report. So, this small negligence or ignorance; however, we may talk it from the Depasquale perspective may lead it to it after plagiarism.

(Refer Slide Time: 19:31)

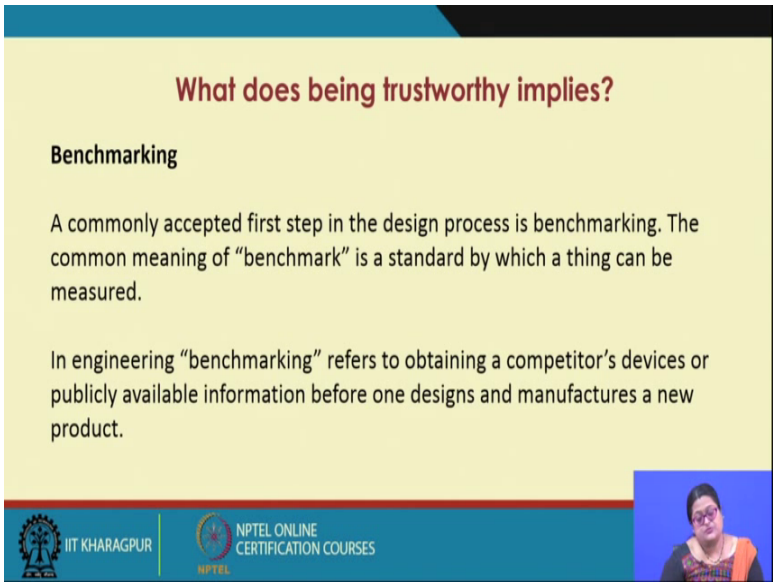


Now, we will move on to the key question 5 which talks of like on the one hand, it is "not invented here" attitude, which disregards advances made outside of its own organization. So, is which is widely blamed for slowing advances in equality and safety. On the other hand, legal specifications of copyrights and patents and other intellectual property protections are intended to limit the use of that others can make of one's designs. What are the fair and prudent means of learning from others? What are their ethical issues in learning from the innovation of others?

This is a very pertinent question, which follows from the case as you have seen. Then like if we are talking always of talking of like: intellectual property protections, copyrights and patents, then how others can then how others can learn? How the knowledge is going to spread? And like what are the ethical issues involved in learning from the innovation of others.

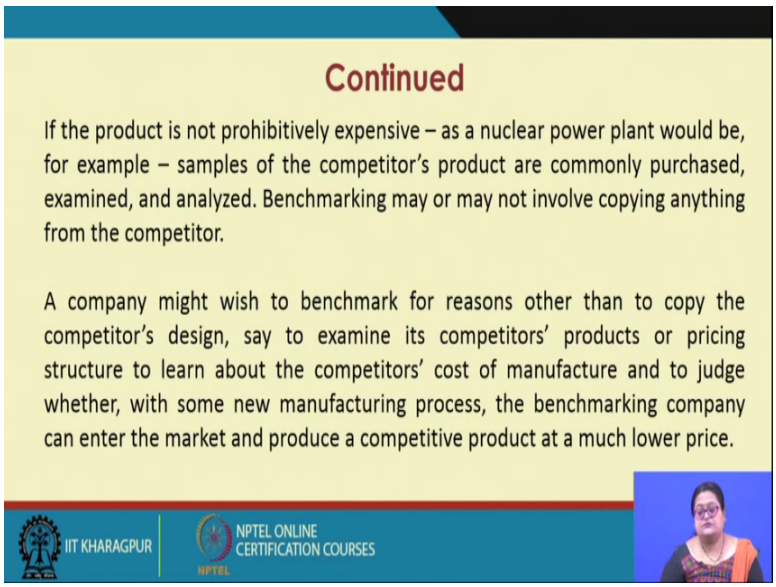
So, these like maybe, we find like this is a question which puts us as a crossroad on the one side; we are talking of protecting our intellectual property rights and the other side we are talking of knowledge dissemination and learning from others. So, if these are appearing to be contrasting in nature, so then how do we build a bridge between these two concepts? Let us see.

(Refer Slide Time: 21:25)



So, these talks of like: trustworthiness. So, first we talk of like benchmarking. So, benchmarking is referring to an like referring to and competitor's devices or publicly available information before, one starts designing from our manufacturing a new product for oneself.

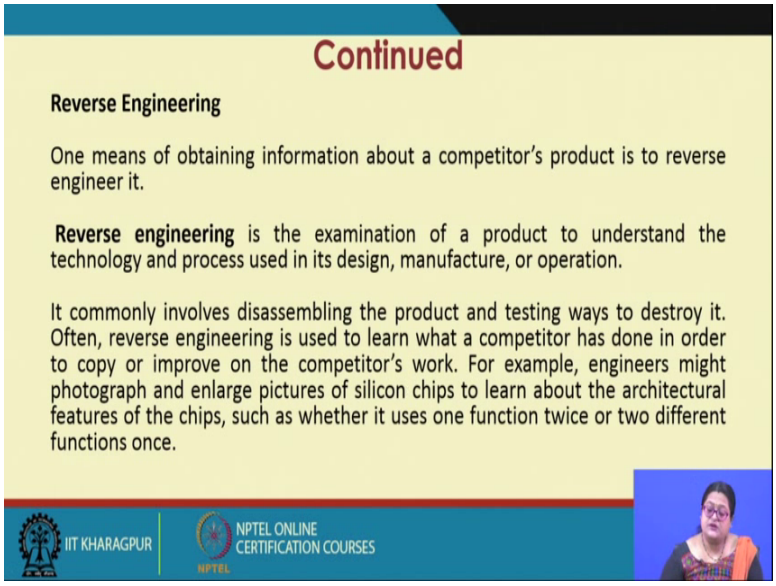
(Refer Slide Time: 22:00)



So, when you are doing a benchmarking, we are trying to learn from the positives of others and also, negatives faced by others. And improve our thing own things accordingly.

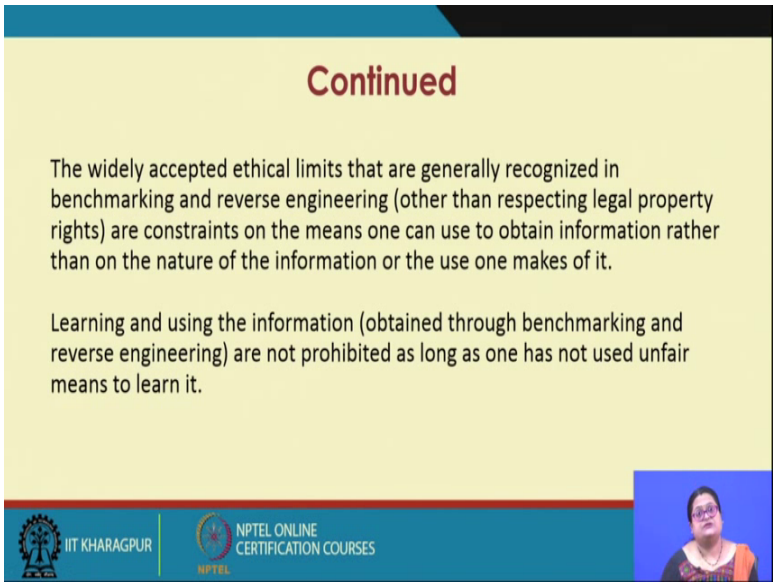
So, as a process of it like; sometimes what has happened, our competitor's product are purchased, examined and analyzed. So, each benchmarking may or may not involve copying anything from the competitor. So, a company may wish to benchmark to learn for many things like, beyond the competitors design, its marketing strategy, its competing products; so, like cost of manufacturer and to charge like with some new manufacturing process. So, how the company benchmark company is going to like come to the market and they can produce a competitive product at a much lower price. So, it could be more of questions related to strategy of marketing and pricing strategy etcetera, rather than the focus being only on the design part.

(Refer Slide Time: 23:23)



We have a term which is called Reverse Engineering. So, one means as you have learnt is benchmarking the other could be the come to do a reverse engineering. So, this is mainly for the knowing the technology or design part of it. So, it talks of disassembling it is assembling the product and testing ways to destroy it. So, reverse engineering sometimes help us to show like what the competitor has done in order to copy or the improve under their competitor's work. For example, engineers might photograph and enlarge the picture of silicon chips to learn about the architectural features of the chips, so, such as whether it uses 1 function twice or 2 different functions once. So, like these type of things.

(Refer Slide Time: 24:31)



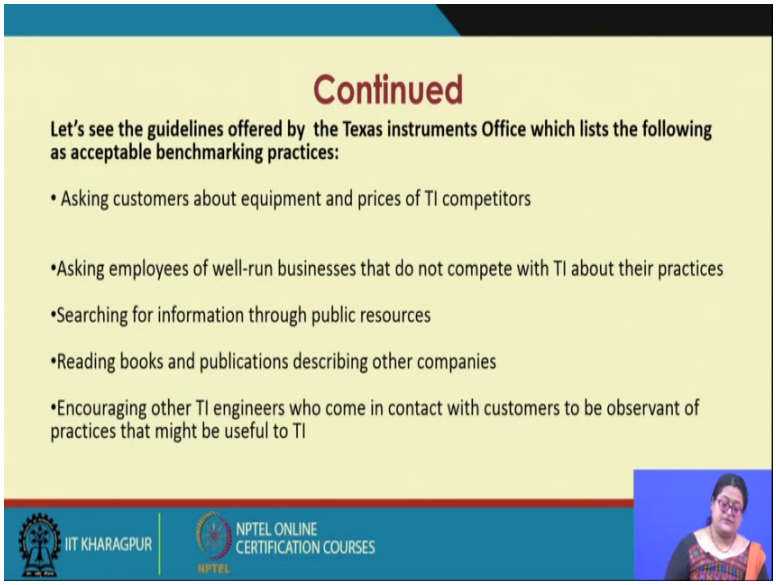
So, widely accepted ethical limits that are generally recognized in benchmarking and reverse engineering so, our rather than respecting legal property rights are commonly liked to be trustworthy and other constraints and the like, they means for one can use to obtain information and rather than on the nature of the information or the use that one makes of it.

So, how you got that information? What was your means to like which was used to obtain information? So, if we like we discussed the case earlier, where we find like maybe, the I take surgeon who has maybe develop some good ways of treating people, and does not want to share that knowledge with the outside world community in the same like they come like in the group of doctors. So, whether and another doctor can do like bribe the operation theatre attendant? Or can like to electronic eavesdropping etcetera, to know about the technique, but that is totally unethical.

So, what we find the word ethics here is more connected with the constraints and the means one can use to obtain information like: there we find that person went through an indirect route like, not asking the person directly to share his or her knowledge, but going to his assistant or putting some voice recognition secret cameras etcetera which is not very desirable. Learning and using the information obtained through benchmarking and reverse engineering are not like restricted as long as, one not has used any unfair means to learn it. So, the process adopted in learning from that source is more important rather

than the massage message itself. So, whether you have taken any unfair means to learn from others and use their information then it is unethical.

(Refer Slide Time: 27:25)



So, we will see by the guidelines given by Texas Instruments Office. So, which are regarding which are acceptable benchmarking practices. So, asking customers about the equipment and prices of TI competitors, asking employees of well-run businesses that would not compete with TI about their practices, searching for information through public resources, reading books and publications describing other companies, encouraging other TI engineers who come in contact with the customers to be observant of practices that might be useful of useful to TI.

So, we find like the whether like how do we benchmark is asking customer support equipments and prices? So, asking competitor employees of like well-run businesses which is not a direct competitor about their practices. So, such of information through public resources, reading of books this is going to give like immense knowledge and guidelines, so, of useful benchmarking practices.

So, what you find like when you are talking of benchmarking? We have to like gather information about the company and its moves from its competitors maybe from other employees of other organizations. So, we have to take a like very 360 degree approach and the focus of benchmarking is not only the design per se, but it is focused on the like

the marketing production and marketing. And the strategy relevant for it for the product in which is not the design per se.

When you are talking of reverse engineering, it is about reversing the design to find out doing the like if it requires these are steps to destroy` it and go back to the core of it; then, these were the steps that was added we chose to the core to come back to today's design. That is how that equation is done. So, when you are talking about reverse engineering it is more design focused when you are talking of like benchmarking it is seeing it as more of a product and its placing in the, like the mind of the people and in the frame of the are the competitors, and for that we can do a competitive analysis to find out where our company stands. Thank you we will come back with more critical questions in the next session.

Thank you.