Ethics in Engineering Practice
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Lecture – 06
Central Professional Responsibilities of Engineers

Welcome to the course on Ethics in Engineering Practice. In the previous discussions, we have discussed about the profession of engineering. And today we are going to discuss about the Central Professional Responsibilities of Engineers.

So, when we I have to discuss about the ethical issues related to engineering practice. At the start it is very important to understand why engineering is a profession, how it is different from other professions, and also what are the professional responsibilities of the engineers and their rights and duties towards it also.

So, in today's discussion we are going to discuss about the central professional responsibilities of engineers. The outline of the course today is like we will discuss about the professional responsibilities of an engineer.

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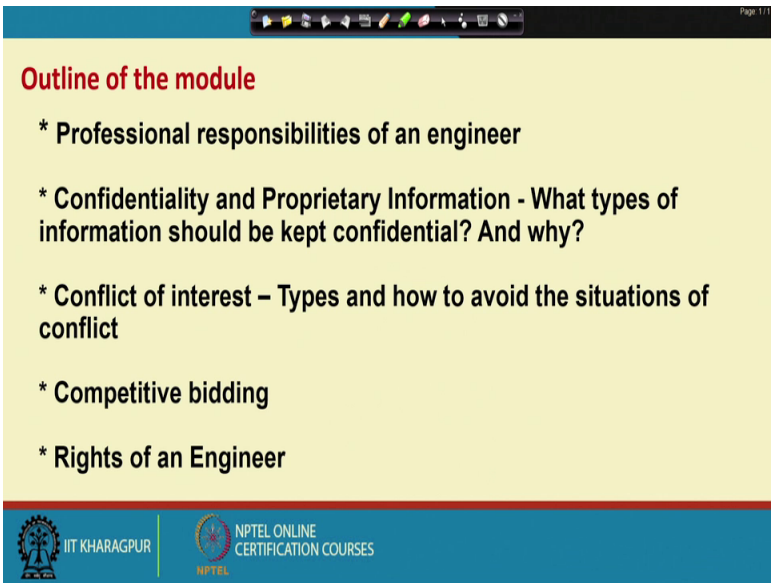

We will discuss about the confidentiality and proprietary information, what type of information should be kept confidential and why. What we understand by conflict of

interest, types and how to avoid the situations of conflict. What do we understand by a competitive bidding and of course, what are the rights of an engineer?

Today's discussion we are going to begin with a discussion of a small case study. So, let us look into what the case tells us about the rights and responsibilities of engineer.

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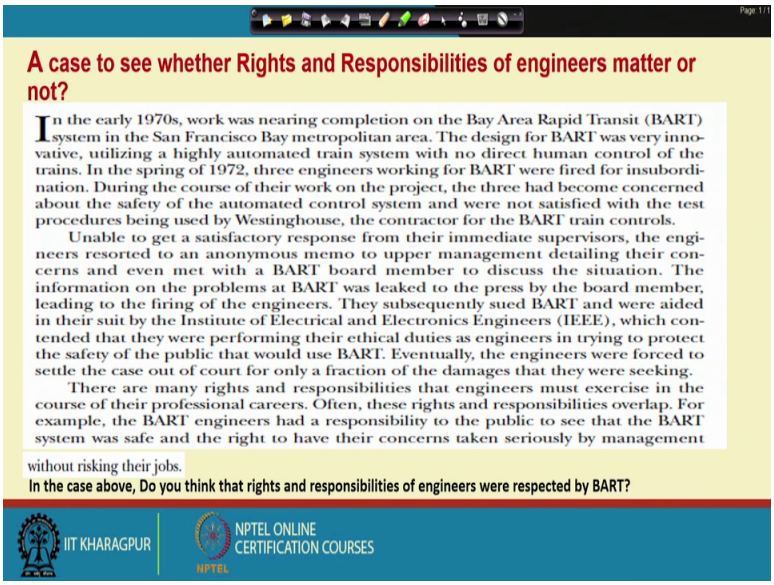

So, what we see in the case in the early 1970's the work was nearing it is completion on the bay area, rapid transit system in the san Francisco bay metropolitan area.

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The design for Bart was very innovative, utilizing a highly automated train system with no direct human control of the treats. In the spring of 1972, 3 engineers working for Bart were fired for insubordination. During the course of their work on the project, the 3 had become concerned about the safety of the automated control system; and were not satisfied with the test procedures being used by Westinghouse the contractor for Bart train controls.

Unable to get satisfactory response from their immediate supervisors, the engineers resorted to an anonymous memo to upper management detailing their concerns, and even met with a Bart board member to discuss the situation. The information on the problems at Bart was leaked to the press by the board member leading to the firing of the engineers. This subsequently sued Bart and were aided in their suit by the institute of

electrical and electronics engineers which contended that they were performing their ethical duties as engineers in trying to protect the safety of the public that would use Bart.

Eventually the engineers were forced to settle the case out of the court, only for only a fraction of the damages that they were seeking. There are many rights and responsibilities that engineers must exercise in the course of their professional careers. Often, these rights and responsibilities overlap. For example, the Bart engineers had a responsibility to the public to see that the Bart system was safe and the right to have their concerns taken seriously by management without risking their jobs.

In the case above, do you think that the rights and responsibilities of the engineers were respected by Bart? Now if we try to analyze the situation the case we find over there like there are 2 or 3 major points coming up and what we find over here? Like they were engineers were fired for insubordination why was like ethical dilemma issues well we will come up, like was it like ethically justified to fire the engineers for insubordination or not. Because what they have discovered in the course of their working is like some loopholes in the safety management system which would have affected the concern for the greater public at large who will be the main stakeholders who will be using this Bart system.

So, was it correct to like put them on a charge of in sub insubordination, was it ethical or not ethical? And we are going to visit it from different perspectives. Sake in what we see over there is a case discussed about like how these 3 engineers voiced their grievances.

They reported it to their immediate supervisors, and when they did not respond maybe favorably or in their give a proper response to it, then they moved on with their concern because felt like it is for the publics will safety at large and they should voice their concerns they moved up to the like a permit management, and dealt with discuss this issues with the Bart board members.

And it is the board members the information got leaked to the press from the board members it was not like the engineers leaked it to the press; through the outer world at first, they tried with her we within the organization they tried to voice and the whistle blow and, but the information was leaked to the outside world by the Bart board members.

So, here while discussing the case also we need to focus on these things; like, where they justified in taking up the case to the upper levels was the process of grievance handling done properly. Then they took it to the board members, and when the board members leaked it to the outside world then what was the degree of responsibility of the engineers involved in it that it went to the press. And was it justified again to like put them under the charge of insubordination. And when we talk of this out of court settlement done with these 3 engineers their ethical issues related to that case also.

So, why we will be discussing the case in details about the rights and responsibilities of the engineers; actually these 2 things goes hand in hand. And there is overlap in these 2 concepts of the rights and responsibilities. And we will have to see by using the different ethical pillars of decision making we have to understand the pros and cons of each of the activities. And then try to arrive at a answer like whether this was ethical or not ethical as per the situation concern or the case given at hand.

Under the rights it is in this section, we will discuss in details first about the rights of the engineers and the responsibilities of the engineers separately. And then we will again come back to this case to see how it is getting applied in this particular case.

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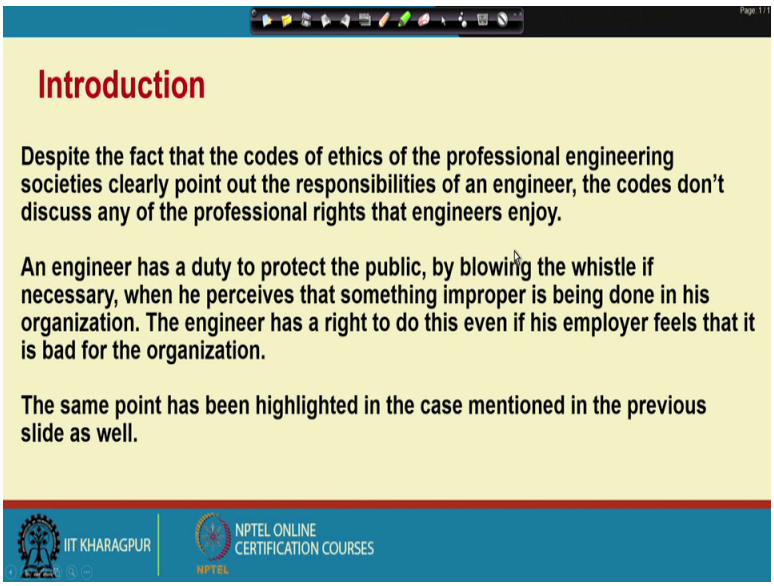

So, what we find over here like the despite being there are many codes of ethics which are present in the professional engineering society. The codes do not discuss of the which

talks of the responsibilities of the engineers. It is somewhere it does not discuss about the rights of the engineers that they enjoy.

So, this we will be discussing in this lecture. So, like as a part of the duty of the engineers they have a duty to protect the public by blowing the whistle if necessary, when he perceives that something is improper is being done in his organization. The engineer also has a right to do this even if his employer feels that it is bad for the organization. And that has been highlighted in the case that we have discussed, and we have seen like the professional body has supported their activity.

So, there is a professional body which the institutionalized body which talks of the supporting this act of the engineers like they have voiced for the greater interest of the public. Because that is the one of the major responsibilities is given to the engineers as a part of profession and responsibility to take care of the safety of the public at large.

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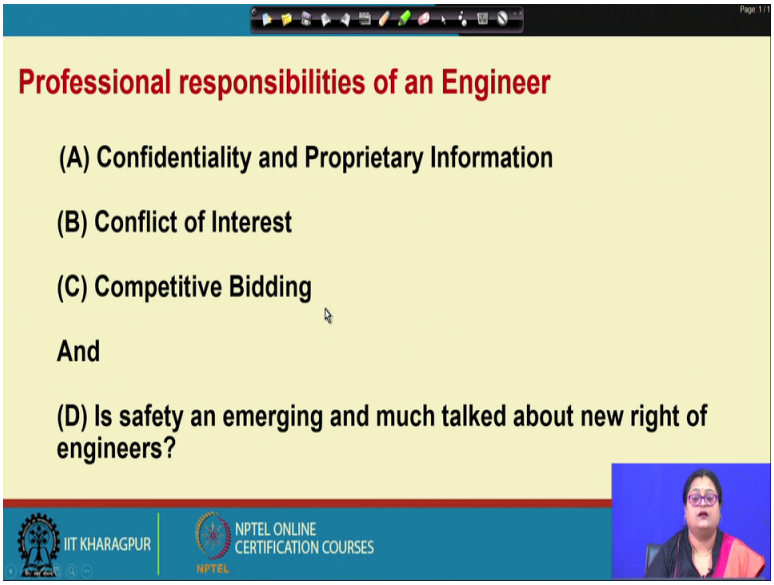

As a part of the professional responsibilities of the engineers in this course we are going to discuss about confidentiality and proprietary information, we will be discussing about conflict of interest. We will be discussing about competitive bidding and also as like about safety weather safety is an emerging and must talked about new right of engineers.

So, let us look into the first topic of confidentiality and proprietary information today.

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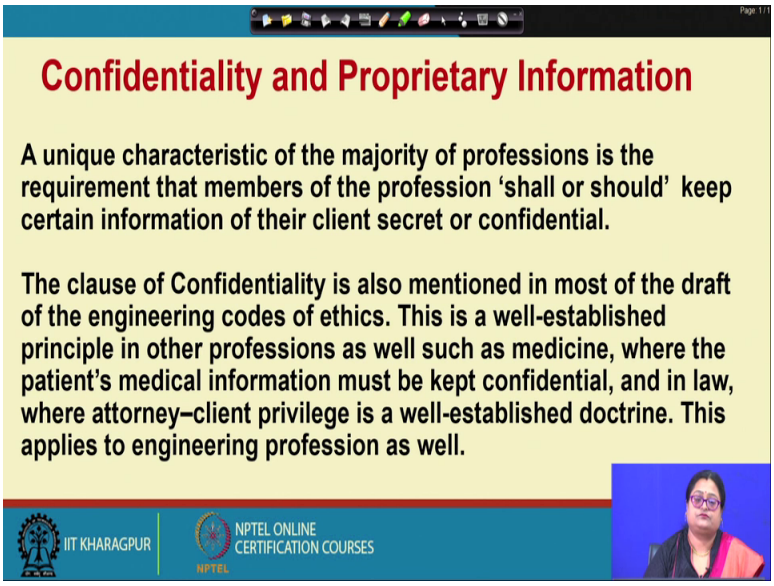

When you are talking of confidentiality and proprietary information, this is an unique characteristics of the majority of the professions is that the members of this profession shall or should keep certain information of their client to the secret or confidential. The cause of confidentiality is also mentioned in most of the tract of engineering codes of ethics.

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This is a well established principle in other professions as well, such as medicine with the patience medical information must be kept confidential, and in law where attorney client privilege is a well-established doctrine. This applies to engineering profession as well.

So, when we are talking of the confidentiality of an proprietary information what comes under proprietary information is like those informed what comes under proprietary information is the confidential data. Then it comes about the results of certain, it is projects which is going on testing which is going on.

Then the information which is still in an very unprocessed way on it is not about to released facts we cannot disclose those informations. Informations which are for design purpose designing of products and business information, concerning the number of employees working in a project, the identity of the suppliers their marketing strategies

and the production cost and the production needs, these are certain confidential information which are very close to the clients business and this cannot be shared with the outside world.

Engineers today are required to function not only as a like only for the engineering discipline, but they are a very ingrained part of the whole business. And there lies the importance of the maintaining this confidentiality of information. They may be handling with so many information which is very crucial to the business of the client.

But being a part of this whole business, it is a part of the responsibility also not to share those information with outside world which may have competitors for the clients also in the environment. And if this crucial information gets like late then it may adversely affect the business. So, engineers today have 2 sin a nondisclosure agreement which binds them from sharing any information with outsiders. Government organizations like in defense sector have more stringent rules with respect to the security issues.

After we have discussed this, then if we go back to the case of Bart and we understand like there is a confidentiality clause, and we even if we understand like they are not using safe processes for the way the things are performing should we voice or should we not voice.

Because it is a part of confidentiality of we as insiders have get to know about the facts about the safety measures taken by the organization to do something. We have signed or we are bonded by a confidentiality disclosure like we are not going to disclose certain facts to outsiders. Should we keep silent or should we voice is a point of ethical dilemma. And that is where maybe your rights and your responsibilities and we will come to conflict.

We have to answer these questions of where does your major responsibility lie, is it to who are the primary stakeholders to whom you are majorly responsible. Here the non-disclosure and the confidentiality talks of maintaining the confidentiality of the information of your clients and not to leak it to the outsiders. Means it is hinting towards your loyalty towards your clients.

But when you see like they are not performing in an expected way that they need to perform. And then and which it is bringing the interest of the larger public concern into

question mark. Then where should you still be keeping silent because of this confidentiality clause? Or it is your further deeper responsibility towards the public at large which will override your responsibility towards your client.

And you will voice try to sound your concerns, but that also has some logical steps like to your immediate bast first, then if that is not heard properly, then you move on to the higher steps. And then maybe you meet a board members, and if still that is not like taking proper care of; at the end then you may go to the outside world and voice your concerns.

Because here your major responsibility lies towards the where is a cure for the public at large. That is where it was discussed; like, if you find something is issues are related to the interest of the public at large; there lies your major like majorly responsible towards them. And then even if it brings you in conflict with your interest or of or your responsibility towards your binding, towards the clients of for non-disclosure of information.

Even if it goes against the interest of your clients, because your major responsibility lights towards the public, you must go on for making those concerns known to the like proper agencies who will who can take care of those things, first within the organization and if still it has not been heard you can go and tell it to the outside organization and to the greater society at large. And that is the one of the major responsibilities of the engineers when you are talking of the safety concerns of the public at large.

Second we are going to discuss about the conflict of interest. Conflict of interest we will discuss like who are the major stakeholders in this conflict of interest, like whose interest gets into conflict over here; like, here in this particular case what we find like there are 3 major parties. One is the engineers, second is the client the company the Bart, and third and the major society the stake who large stakeholder which is the public.

So, when we are talking of conflicts of interest, we have to understand like whose conflicts of interest are we dealing with, and how to resolve it. Conflict of interest comes in when I am as an engineer you know working for a company, and the company maybe is taking some supplies from some suppliers. And I am also having a side business where I also supply the same kind of things.

Conflict of interest of and I am in a decision making power in the organization to do a selection of the suppliers. My conflict of interest will coming, first direct I am going to decide to select the suppliers, and also I am one of the suppliers for the goods. Should I recommend myself or should I not? Should I go for another supplier how do I select my suppliers?

Conflict of interest comes in where my personal interest is in conflict with the interest of the organization. We will discuss over here what are the steps required what should I do in this case. I am a person who is going to decide for the selection of the suppliers based on certain criteria certain parameters which are going to help me choose the best supplier for the organization for the task at hand.

If also I am one of the suppliers for the same kind of things to be delivered, then my conflict comes in whether to decide for the best interest of the organization or to recommend myself what should I do; should I be bidding for those with the along with the other suppliers? Or should I keep myself away from the process? Should I be one of the decision makers for the supplier selection or should I keep myself out of the process of this decision making to give so that there is a fairness in the process of the decision making for the selection of the suppliers. And whoever qualifies best based on the numberings given based on the qualifications given, based on the scores given on that qualification that person gets selected because of his or her performance.

Should I be involved in that decision making process? Or because I do have some personal interest as a supplying that I should keep myself away from this decision making process, and let others decide and choose the suppliers. And I can resolve my own conflict of interest along with the best interest of the organization in that way.

Next when it comes like the conflict of interest of the organization with the conflict of interest of the public at large, the like we saw in the particular case, then we should always give more weightage to the interest of the public at large and take measures accordingly which will help us to meet the interest of the public at large the majority. And there we go by the utilitarian concept. There we go by the caring concept because our care is for the society at large.

And we can resolve this conflict of interest by following up due course of grievance mechanism so, that the organization also gets chance to take care of it is mistakes, and

we also get a chance to sound our concern for the society at large and give a scope to the organization to correct itself.

And in that way we resolve the conflict of interest which I have arisen between both the parties. In the next discussion we are going to discuss about competitive bidding and safety. How, why safety has become one of the major responsibilities of the engineers in the continuing next discussion.

Thank you.