

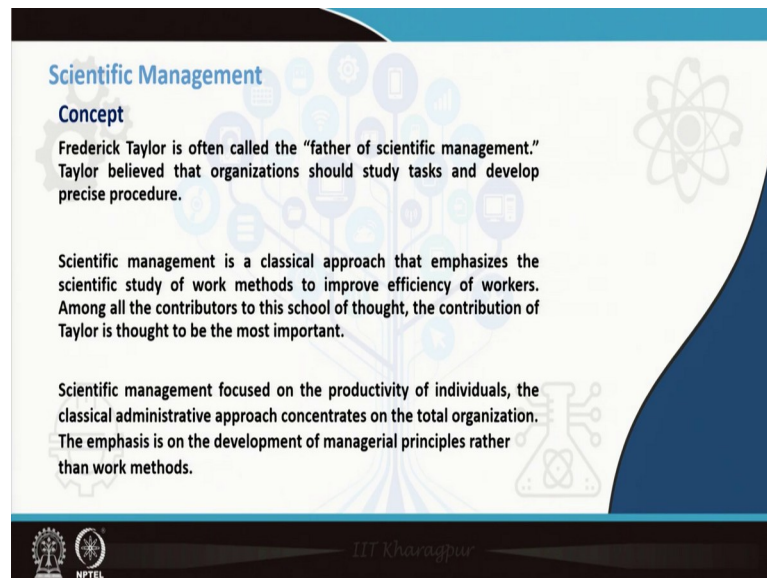
Principles of Management
Prof. S Srinivasan
Vinod Gupta School of Management
Indian Institute of Technology, Kharagpur

Module - 01
Lecture - 04
Scientific Management

Welcome to the lecture 4. We are going to discuss about Scientific Management today. In the first few three lecture we discussed about the definition of management concepts and purpose of management and types of management skills and roles of managers.

Today we are going to look at the scientific management. This today's sessions will be discussing about principles of scientific management. What is scientific management is all about and who proposed this concept of scientific management.

(Refer Slide Time: 00:52)



Scientific Management

Concept

Frederick Taylor is often called the "father of scientific management." Taylor believed that organizations should study tasks and develop precise procedure.

Scientific management is a classical approach that emphasizes the scientific study of work methods to improve efficiency of workers. Among all the contributors to this school of thought, the contribution of Taylor is thought to be the most important.

Scientific management focused on the productivity of individuals, the classical administrative approach concentrates on the total organization. The emphasis is on the development of managerial principles rather than work methods.

NPTEL IIT Kharagpur

Let us get into the subject a scientific management is a classic approach that emphasize this scientific study of work methods to improve efficiency of workers. And the father of this scientific management is Frederick Taylor, he has the one whose proposed this concept of scientific management he said that you know in any work in worker has to be chosen consciously.

So, that the productivity can be associated with the how whom we are going to select for the job and moreover, how we can increase the efficiency job depends on how we are going to scientifically you know design the work. You know scientific management focused on the productivity of the individuals as I said, it is focused on the productivity how we can increase the efficiency and productivity at the workplace.

The classic administrative approach concentrates on the total organization know; this essentially focuses on the managerial principles rather than the work methods ok.

(Refer Slide Time: 01:44)

General components of Scientific Management

The general components of scientific management are as follows:

- i) **Determining the best way to do each job:** Manager sets the best way out and encourages employee's determination to do that
- ii) **Selecting the 'first class men' to do each job:** Efficiency of the employee is the ultimate target for maintaining workflow
- iii) **Paying per piece:** Analysing workflow and paying for the best practices
- iv) **Duties of management:** Managers need to be ensured his/her duties

NPTEL
IIT Kharagpur

Let us go and see, what are the general components of scientific manager, one is determining the best way to do each job. Manager sets the best way and encourage employee's determination to do that. It is very simple you know every worker will have their own way of doing the job, but the role of manager is to define the best way to do each job.

For example, lifting a heavy material right. So, everybody will follow different methods and approaches towards lifting a weight, but as a manager it becomes an organization role to define ok. If there is a weight which is more than you know 20 kilos, if it is more than 50 kilograms there should be a posture the way you lift it just an example.

So, it applies to all type of a job you know taken anything in your job in an organization. So, determine the best way to do each job, then selecting the first class meant to do each

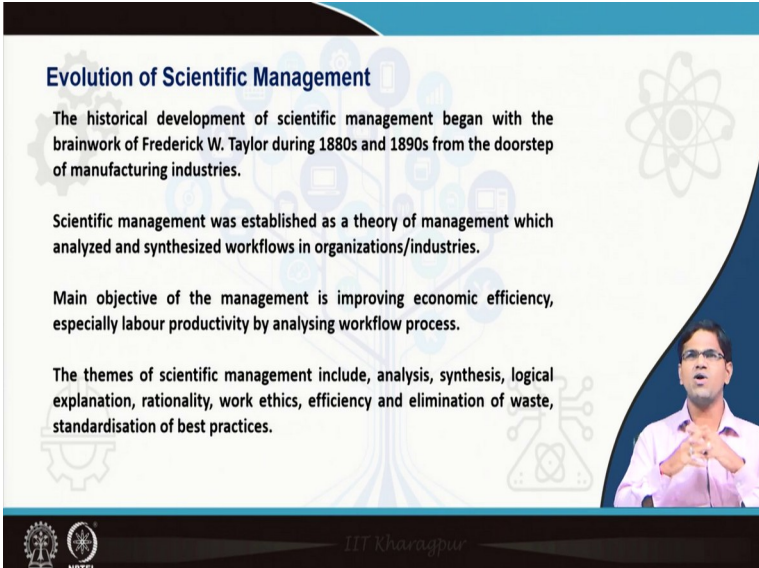
job, it is very simple you need to have a right person at the right job. You know for example, there are some work, which are you know involved lot of physical work, then you need to select a person who is having a good physique. So, that no he or she can able to you know engage in the physical activity.

For example, you need a person who is to be smart enough to you know engaging with customers, or clients or that person should be really good at the interpersonal skills or a communication skill. So, that selecting a first class meant to do each job is very important, then paying per piece you know this is where the concept though the scientific management is you know essentially hold.

But if you look at the application of paying per piece which even today it is very applicable. You know the scientific management principle also says you cannot pay individuals on a fixed price rather than you need to associate, the pay along with how much of the job is been done by the individual.

So, it is actually in a way it is also motivates employees to do a more productivity so, that I can earn more. So, paying per piece you know associating the pay with respect to the output of the job, they done the quantity of the job being done by the individuals. And duties of the manager need to be ensured his or her duties, you know manager to be clearly give the duties and there should be no confusion about whose to do what and you know the two people are overlapping with each other that that should not be there.

(Refer Slide Time: 03:57)



Evolution of Scientific Management

The historical development of scientific management began with the brainwork of Frederick W. Taylor during 1880s and 1890s from the doorstep of manufacturing industries.

Scientific management was established as a theory of management which analyzed and synthesized workflows in organizations/industries.

Main objective of the management is improving economic efficiency, especially labour productivity by analysing workflow process.

The themes of scientific management include, analysis, synthesis, logical explanation, rationality, work ethics, efficiency and elimination of waste, standardisation of best practices.

IIT Kharagpur

NPTEL

The slide features a background with faint icons of a gear, a lightbulb, and a person. On the right side, there is a small inset image of a man in a white shirt speaking, with his hands clasped in front of him.

Then moving further know we are going to look at the evolution of scientific management, when this concept of you know scientific management evolved. The historic development of scientific management began with the brain work of Frederick Taylor as I said he is a father of scientific management during 1880s and 1890s from the door stepper of manufacturing activities.

I am going to describe about a lot of experiment he has carried out, you know in building this scientific management. The one of the famous experiments is a big iron experiment where Frederick Taylor has actually conducted this experiment in one of the you know iron producing an iron rod producing industry.

So, let me give in a very simple way how that experiment has been conducted. So, in a particular company where the general work of a employees is to lift the iron rod and place it on a truck imagine. And we have to place it on a truck and he has found that, an on an average and every day an individual can lift 12.5 tons of iron rod and then place it on the truck, that is what he found.

Then applying the scientific management can we increase the you know productivity, meaning that no can we make some you know some of the people to lift more than 12.5 tons applying all the principles as we discussed.

What he did? He started with identifying a right person because, this job actually involves a lot of physical activity means you know one person has to be really good with his physiques or means no with you know after you lift weight. So, he has actually chosen right persons you and then what he has done he has trained the people and he asked actually you know scientifically design how it has to be done.

So, what he has done is ok? He sees as a manager he said then he has to oriented the workers that ok. You need to simply follow what manager says you do not need to do anything more on your own, but you need to follow the instruction of the manager that is instruction given to the workers, then next what they have done.

Then he has actually broken down the work into similar you know subset of jobs, how it is just simply lifting and placing down the track, but instead of with that what he has done is he said let us you know he has actually broken down like a lift drop, lift drop.

And he has actually scientifically may know defined because for example, lifting a rod and then walking up to a long distance and place it on the track, we know that actually by doing this continuous activity this is you know workers are becoming very tired, and then you know it is very tiresome work. So, that efficiency is not high.

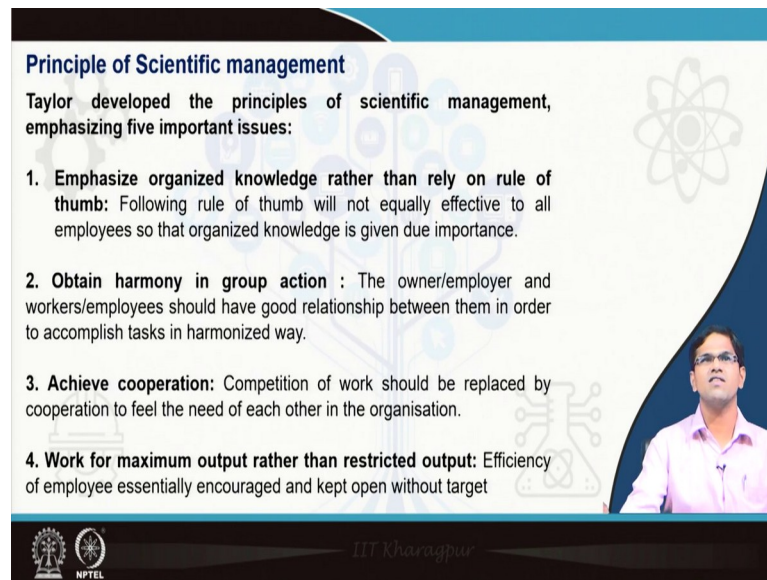
So, they defined the way that you lift drop rest lift rest lift rest. That way you are surprised to look at the end result that no on a day, these workers are able to lift 47.5 tons of you know iron rods and able to load the truck. Then he has actually the scientific management principles are all evolved from this out of this experiment.

Along with you know Professor Frederick Taylor, there were two proponent people also involved in the you know scientific management experiments you know Frank Lillian Gilbreth. They also conducted the time and motion study bricklaying experiment, many of these experiments actually know resulted in developing this you know scientific management.

Then after outcome of this experiment was the scientific management has established as a theory of management, which analyzed and synthesized the workflow in an organization. As I said the outcome of the experiment is actually help these people to propose the theory of management, which actually focused on how you can you know subdivide the work and create the synthesis of the workflow. So, that the productivity is really high.

The main objective of this management is to improving economic efficiency especially labour productivity. And this is specifically focused on the productivity base it is not nothing more nothing less. So, this focused specifically on the productivity orientation as we seen in the definition of the management also, productivity orientation. The scientific management actually focused on the you know productivity orientation. So, how we can increase the productivity at the workplace.

(Refer Slide Time: 07:35)



Principle of Scientific management

Taylor developed the principles of scientific management, emphasizing five important issues:

- 1. Emphasize organized knowledge rather than rely on rule of thumb:** Following rule of thumb will not equally effective to all employees so that organized knowledge is given due importance.
- 2. Obtain harmony in group action :** The owner/employer and workers/employees should have good relationship between them in order to accomplish tasks in harmonized way.
- 3. Achieve cooperation:** Competition of work should be replaced by cooperation to feel the need of each other in the organisation.
- 4. Work for maximum output rather than restricted output:** Efficiency of employee essentially encouraged and kept open without target

The slide features a blue and white color scheme with a stylized atom icon in the background. A video inset in the bottom right corner shows a man in a light blue shirt speaking. The NPTEL logo and 'IIT Kharagpur' are visible at the bottom.

So, now, we will see the principles of scientific management. So, he has developed five important you know principles of scientific management, emphasizing five important issues.

One is emphasizing organize knowledge rather than rely on a rule of thumb. You know following a rule of thumb will not equally effective. For example, I just follow one particular rule which is not been applicable to other people rather than going for this rule of thumb you know, it is actually addressed you know some of these issues like you know where you need to collect a organize knowledge in giving new importance.

Then obtain harmony in group action it is very important know, there is talking about now harmonious relationship between the employer and employees. In if you can replace the employer with the managers and the subordinates and you know a supervisor and the workers, should have a good relationship them in order to accomplish the task in a harmonious way that is very important know. There should be a harmony between the cordial relation between the supervisor and the worker, manager and the subordinates and the employer and employee.

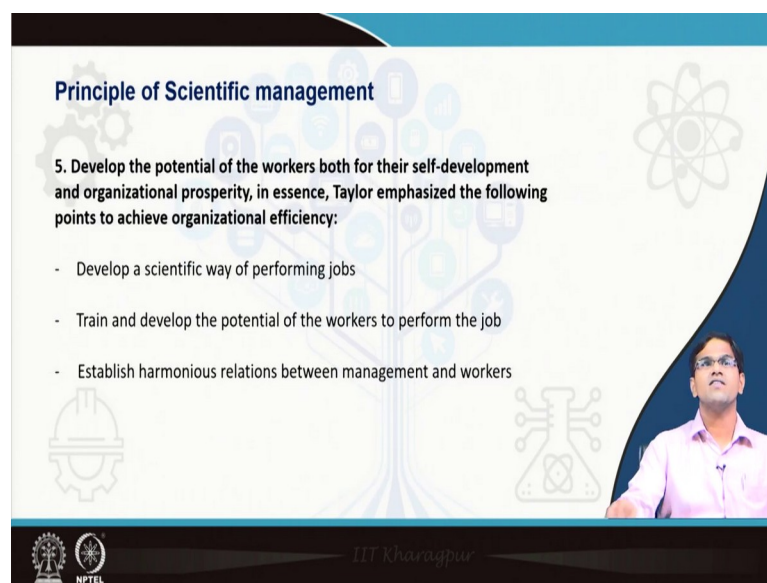
So, that know you are able to you know accomplish the task in a harmonized way, then achieve cooperation you know it is not about you know competing with each other. It is more about you know cooperation. So, that know collectively we are able to you know increase the productivity collectively you are able to achieve something ok. Work for

maximum output rather than the restricted output you know for example, in an organization we if often use to see that you know there is a fixed amount of target.

And you know what will happen in the moment you know we; you know it is also psychology involved in it when the moment, we see this is a target we always see ok. We are achieving towards this target the moment you know let us say I have set a target of 10. The moment you are reaching 7 and 8 we are actually you know physically making and mentally also making about mind that ok. We are only two more you know product left with to achieving our target for today.

But you know what they are actually saying that know you focus on maximum output rather than the restricted output. Let us actually motivate people you know you actually increase the better practices workplace practice so that you know, we can get the maximum rather than the you know restricted output ok.

(Refer Slide Time: 09:31)



The slide is titled "Principle of Scientific management" and features a background with various icons related to science and industry, such as a gear, a lightbulb, a microscope, and a person. The text on the slide reads:

5. Develop the potential of the workers both for their self-development and organizational prosperity, in essence, Taylor emphasized the following points to achieve organizational efficiency:

- Develop a scientific way of performing jobs
- Train and develop the potential of the workers to perform the job
- Establish harmonious relations between management and workers

In the bottom right corner, there is a small inset image of a man in a pink shirt, likely the presenter. At the bottom of the slide, there are logos for IIT Kharagpur and NPTEL.

Then moving forward, you know they also talked about you know develop the potential of the workers. For their self development and also for organizational, you know prosperity this is you know specifically focusing on training the set of workers for example, as is as I said in the experiment, they identified you know workers who are actually you know able to lift the heavy iron rods right.

So, they have chosen those workers and then you not as an organization you not train the workers on a type of job they are going to do. It is you know you are investing on the training which is meaning that you know of course, you are going to develop the workers, but it is not only going to develop the workers. You know it is also going to help us improve the productivity in the organizations.

They also talked about the develop a scientific way of performing job, as I said you know any set up job to be done this scientific management always says ok. You decide the scientific way of doing things. For example, know though these experiments conducted a century ago, where if you can see the relevance today you will appreciate how the scientific management is actually helping.

Let us imagine our you know if I think a hope most of you would have visited some of the manufacturing plants. If you go to any manufacturing plant you always see that you know the production floor. Production floor you see there is a sequence of activities will happen at on a sequence so that you know. At finally, you are able to produce an end product.

This is very similar if this they also applying the scientific management principle in some sense. If you look at now, they have divided the job, let us say I wanted to produce a car so, car is my end product. So, how I can produce a car I cannot make everybody work in the same place and then produce a car.

So, what I have done? I broken down the end output into multiple subsets of jobs. Then so each shop force will do (Refer Time: 11:08) of the shop and all the assignment and assembling has been done. Then finally, you get a you know produced end produce product such as a car.

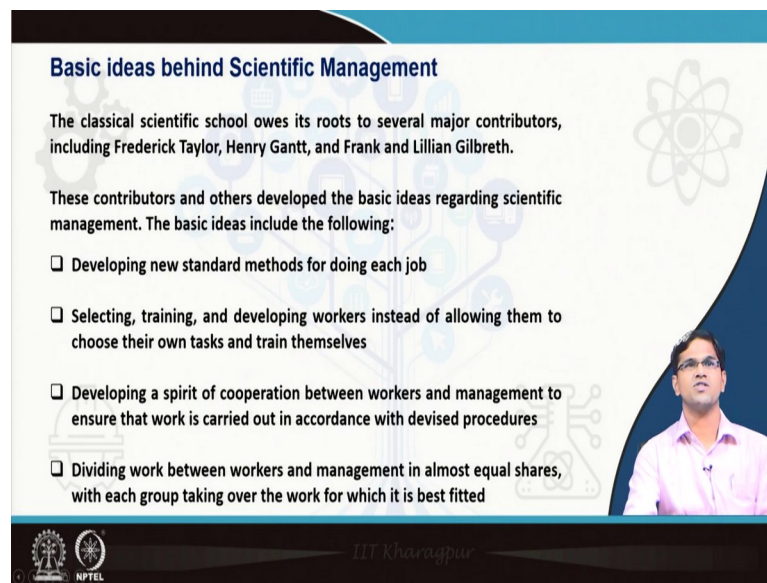
Similarly, this actually the scientific management principle you know in essence it's been applied in the all the manufacturing plant if you take. So, they have scientifically you know they divided the way how the job has to be done. And then train and develop the potential of the workers to perform the job that is important.

Let us say you know one has to do a particular set of job you know to train the worker so, that you know they become expert in doing the same, then it's kind of a repetitive job

the moment they repeatedly doing it, and then you train them put them in a right job, then they are able to perform better.

Then establish harmonious relation between management and workers that is very important. You need to maintain the harmonious relationship between the management and workers, and in a sense, you know for example, as a manager you need also maintain a better relationship in the coworkers or the subordinates you are talking about ok.

(Refer Slide Time: 11:55)



Basic ideas behind Scientific Management

The classical scientific school owes its roots to several major contributors, including Frederick Taylor, Henry Gantt, and Frank and Lillian Gilbreth.

These contributors and others developed the basic ideas regarding scientific management. The basic ideas include the following:

- Developing new standard methods for doing each job
- Selecting, training, and developing workers instead of allowing them to choose their own tasks and train themselves
- Developing a spirit of cooperation between workers and management to ensure that work is carried out in accordance with devised procedures
- Dividing work between workers and management in almost equal shares, with each group taking over the work for which it is best fitted

IIT Kharagpur

NPTEL

The basic ideas behind scientific management I know as I said in the beginning of the session, you know along with Frederick Taylor Henry Gantt Frank and Lillian Gilbreth both of them are spouses. These people are the major contributor towards this you know concept of scientific management.

These contributors were developed basic ideas regarding scientific managements, we will discuss what are those basic ideas. Developing a new standard method of doing each job as I said you know any set job. You need to define a standard method of doing the job it is nothing, but you know a Standard Operating Procedure we call it SOP right. So, every job you need to have an SOP.

So, that you know it is very clear for example, we always you know try to differentiate between cook and a chef, who is a cook and who is a chef. You know chef will always

have a SOP for every dish they produce right you know I am just bringing in a very real example so that you would like.

Know with the standard SOP is available where anybody who goes and you know prepares that particular dish, you get you know you will feel the same taste. How because there is an SOP? There is a standard method of doing create the dish right, that is how in a similar way you know every job has to have a standard method for doing each job.

Then second selecting training and developing workers instead of allowing them to choose their own tasks and train themselves. You know it is you know it is very important right, you need to select a right person and train them and place them on the right person. That is important rather than know you all know them to go ok.

Let us say I hired you for my company you go and try to see ok, you are tested are able to do with this particular job, if not failing then go to the next one you try again and if you are failing you move you would not afford to do that right. So, as an organization you have to select train and develop the workers instead of, let them go on trial and then identify where they are suited.

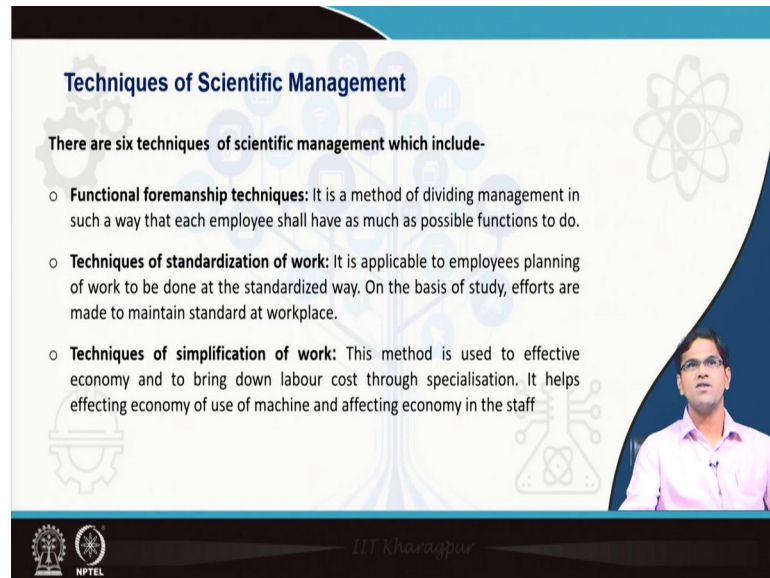
Then next one developing a spirit of cooperation between workers and management to ensure that work is carried out in accordance with a devised procedure. And as we are continued to see that you know cooperation is important than the competition, it you know we often see that know you create a competition between two groups. We you will see that one group is outperforming other the moment one group is outperforming other, there you see you know there is a demotivation among the groups which lost.

So, you know here it is more of you know create a cooperation between the you know management and the workers. So, that know there is a harmonious relation there is a you know seamless connection between the management and the workers. So, that whatever the scientific way of doing the job is will be actually been implemented then. Dividing the work between workers and management in almost no equal shares with each group taking over the work for which it is best fitted.

You know it is again know equally shared the work between the worker and the management and, you need to see that know each group is taking over the work which is

best fitted you know for worker what they are best at it you need to provide that job to them so, that know they do their best. You know it you assign something which they are not good at it then you cannot expect the better outcome right.

(Refer Slide Time: 14:53)



Techniques of Scientific Management

There are six techniques of scientific management which include-

- **Functional foremanship techniques:** It is a method of dividing management in such a way that each employee shall have as much as possible functions to do.
- **Techniques of standardization of work:** It is applicable to employees planning of work to be done at the standardized way. On the basis of study, efforts are made to maintain standard at workplace.
- **Techniques of simplification of work:** This method is used to effective economy and to bring down labour cost through specialisation. It helps effecting economy of use of machine and affecting economy in the staff

The slide features a blue and white color scheme with decorative icons of a gear, a lightbulb, and a chemical structure. A small video inset in the bottom right corner shows a man in a pink shirt speaking. The footer includes the IIT Kharagpur logo and the NPTEL logo.

And now we are also say going to see that there are techniques in scientific, there are six techniques of scientific management. One functional foremanship technique, it is a method of dividing management in such a way that each employee shall have as much as possible functions to do.

You know for example; you know if you are giving a particular set of tasks assigned to them you are you need to allow them to as maximum as possible to complete the whole set of tasks. You know it means you know you need to provide them as much as possible function to do, to take care of the particular you know work area work domain or whatever we are talking about. So, you need to give the as much as possible functions they can deliver in the particular function.

Then techniques of standardization of work as I said you know I as given an example of you know chef cooking a preparing a dish right. So, the technique of standardization of work is very important it is applicable to employees planning of work to be done at the standardized way.

If the you know standardization is then if the SOP is in place, you know irrespective of who is going to do the job it is very easy it is very clear you know it is black and white ok. You go a b c d there is a sequence and it says a you do this lift drop lift drop it is very clear. So, standardization of work is done. So, it is very clear and there is no confusion, ok.

Then techniques of simplification of work, you know you need to always you know there is a method to use an effective economic to bring down the labour cost through specializations. And in a it helps affecting economy of use of machines and affecting economy in the staff.

You know it is always you need to find out the simplification of work and then you know also I have to identify the specialization. So, that you know you are effectively using it and because we are worried about the efficiency and the end productivity right ok.

(Refer Slide Time: 16:31)

Techniques of Scientific Management

- o **Conducting scientific study on work:** It is applied to study method, time taken, motion of work flow, for minimising cost and maximizing customer's satisfaction
- o **Differential wage/piece rate:** Applying this method, the rate of wages is commensurated on the basis of work done and not on the basis of time spent for the work. As a result of this, less efficient will be motivated to work more and efficient workers will be encouraged to maintain efficiency
- o **Mental revolution:** This method is dealt with the change of mindset of both employer and employees. Taylor said, It is feeling of cooperation

The slide features a blue and white color scheme with a background of faint icons including gears, a lightbulb, and a network diagram. A small video inset in the bottom right corner shows a man in a pink shirt speaking. The footer contains the IIT Kharagpur logo and the NPTEL logo.

Then moving further conducting scientific study on work, it is very important in any organization if you say, you know you cannot you know organically or let it go on its own to let us you know reach the you know maturity phase.

You know we cannot let things to happen in our workplace, we also need to do a scientific study on work. For example, I know what is the end product if you are very

clear about what is your end product, then you need to know what are my materials been used and how I am going to produce the end material.

Then you need to do a scientific study to understand ok, what are the you know different how should I divide the particular job into subgroups and how I should assign people and how what is the sequence of doing the job.

So, that I can produce the end product for example, take an example of a creative organization, let us say you know Google as an example or Facebook as an example. Though yes there is set of defined products is already existing, but they are also striving to create new you know creations or new products or new software or new applications.

So, wherein into sort of creativity involved, where you cannot do a scientific study and work, you know it is not applicable. Because you need people let there are team creative team work on it an r and d team work on bringing up something new something different. Whereas, know you know if you know what is your end product.

For that you need to follow the scientific management principle, you need to conduct a scientific study how an end product can be produced. In a best possible way and efficient way then differential way and piece rate. So, you will be surprised to look at you know century ago people have thought about how we can associate, this of paying a wage with respect to the quantum of the work been done by the employer rather than you know just it paying a fixed amount.

See for example, what is the you know drawback of fixed amount versus the piece rate. So, if you look at you know I think I appreciate that no many of you might be working in the organizations, where you will be always you know learn about that know people pay based on the quantity of work done rather than the fixed range. How it is different?

When you are paying a fixed rate there can be some organization say there is a fixed target, but though if you are not able to achieve the fixed target still an employee get the salary, you know over the period of time what will happen you know their motivation might go down it not necessarily that know they will continue to you know be efficient and reaching the target.

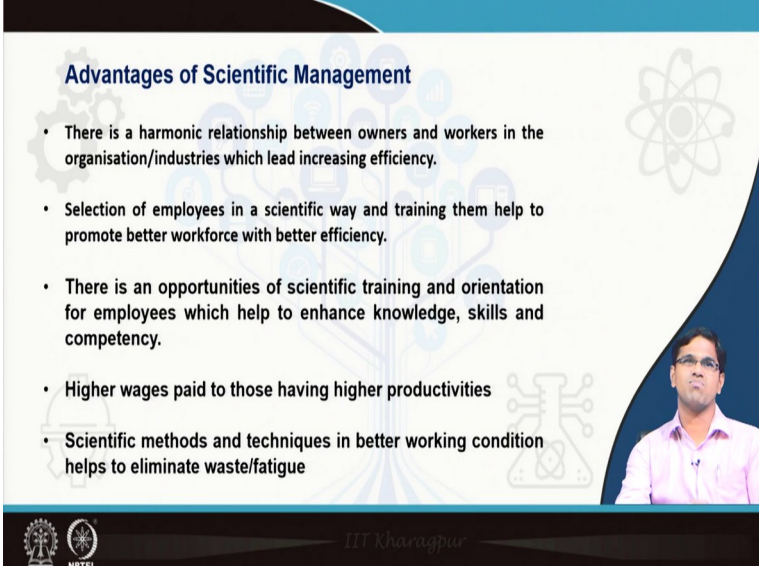
But if there is an associated piece rate for example, I set a target of 100 a day and subsequently you see that know 1 day you pass the 100 let say you produce 110. And let say that days salary is like you know 10 percent more than what you are generally used to earn, then there is an you know motivation that is an efficiency to increase.

But you know for example, within the 8 hours if you are able to produce 110 there is a 10 percent increase of your salary it is also to the p set. Imagine you work for the 10 8 hours, but you still produce 110 instead of 100, but you are not paid. Because it is a fixed wage that is why they are talking about a differential wage system there.

So, that know it actually increases the efficiency and then motivation also, because you know if you look at the worker category, they are generally look at know how much I earn at the end of the day, how much I can carry at the end of the month. So, it is about the quantum of the money also that is where the differential wage system will actually you know attract the lot of workers and then it will increase the efficiency.

Then mental revolution this method is dealt with the change of mindset of both employer and price Taylor said it is a feeling of cooperation, I know it is a mental you need to look at the cooperation between the management and the employee ok.

(Refer Slide Time: 19:54)



Advantages of Scientific Management

- There is a harmonic relationship between owners and workers in the organisation/industries which lead increasing efficiency.
- Selection of employees in a scientific way and training them help to promote better workforce with better efficiency.
- There is an opportunities of scientific training and orientation for employees which help to enhance knowledge, skills and competency.
- Higher wages paid to those having higher productivities
- Scientific methods and techniques in better working condition helps to eliminate waste/fatigue

The slide features a blue and white color scheme with a background of faint icons related to science and industry. A video inset in the bottom right corner shows a man in a light blue shirt speaking. The NPTEL logo is visible in the bottom left corner, and the text 'IIT Kharagpur' is centered at the bottom.

Then we will look at some of the advantages of the scientific management, it is you know it's a harmonic relation between owners and workers in an organization which lead

increasing efficiency. You know as I said it is you know reinstating on the for a fact that you know that should be in a harmonious relationship existing between the worker and the management. So, that the work is smooth and there is no conflict between management and the workers

Then selection of employees in a scientific way and training them helped to promote better work force with a better efficiency. Now, if you look at you know a lot of advancement has come up in you know how do you know identify the workers. So, those many people apply for a job then moment you apply for a job.

Then there are an assessment center people take you and simulations, you know virtual reality augmented reality, they let you in feel how you will be able to do a job then you say ok. There is a you know ability in this person who can perform this task. For example, if you have given an interview just you know reflect back you would have seen that know some tasks been actually given to you. So, that they will try to test you whether are you actually capable of doing it.

So, then the you have been hire hired by the company right then that is a you know the way they are I actually hired recruit people. Then there is an opportunity of scientific training and orientation where employees which helps to enhance knowledge skills and competency. Let us you know I hired somebody then I provide a scientific training meaning that know I have already decided, how the scientific way of doing my job you know or repetitive job.

Every day this is your task and you have to repeatedly do this job, then I actually it's a I trained them ok. See there is a standard operating procedure you just follow it and then you train and get trained to it. So, you are actually up skilling and you are also known learning lot of knowledge and new way of doing it and then the competency is increasing.

Then higher wages paid to those having higher productivities, you know that is what know we are again coming back to the same point that know you one has doing an extraordinary job has to be paid more. So, for example, you know I paid 100 let us say you know 5 people are working together and one actually produces always 10 percent more than the others, if he or she sees that you know everybody pays rupees 100 rupees a day.

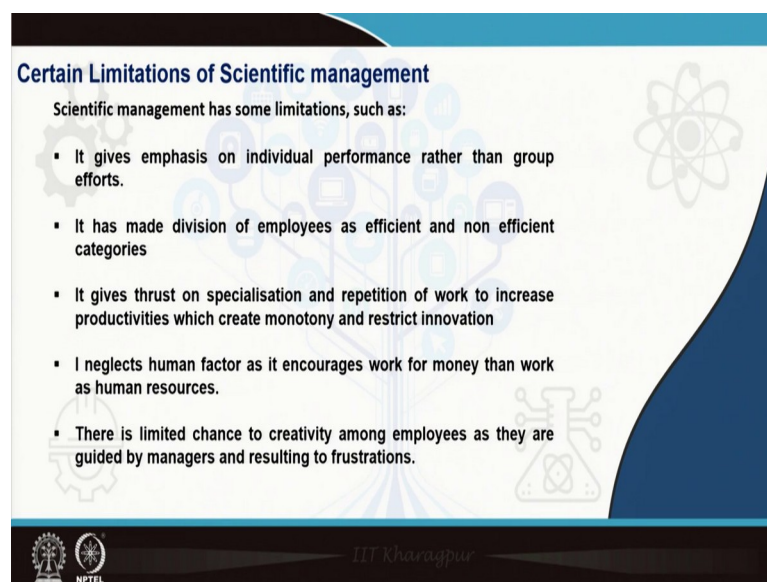
Then you know I why should I produce 10 percent more since I am also going to be paid the same then there is no motivation right. They feel like let me also not do anything more let me also do the same thing ok.

Then scientific methods and techniques in better working condition helps to eliminate waste and fatigue. See the scientific study how it is going to help one way you know effectively should know planning your work, but more over it is also talking about eliminating waste procedure. For example, let us say you know to produce a particular product let us say I have decided that know 1 2 3 4 10 subsets of jobs to be done to produce a you know final product.

Then when I was doing a scientific method, then I realized that you know it is not necessary that I should have 10 subsets of jobs to produce a product, instead I can do with 8. Then actually I am trying to eliminate two steps meaning that you know if I hired ten people for performing the two steps meaning that, I am able to save cost I am saving a time there are a lot of advantages associated with that right.

So, that is why you know it also eliminates waste procedures and fatigueless among the employees ok.

(Refer Slide Time: 23:04)



Certain Limitations of Scientific management

Scientific management has some limitations, such as:

- It gives emphasis on individual performance rather than group efforts.
- It has made division of employees as efficient and non efficient categories
- It gives thrust on specialisation and repetition of work to increase productivities which create monotony and restrict innovation
- It neglects human factor as it encourages work for money than work as human resources.
- There is limited chance to creativity among employees as they are guided by managers and resulting to frustrations.

NPTEL IIT Kharagpur

Then though we are appreciating about a lot of things about these scientific management there are certain limitations of scientific management as well. You know it gives

emphasis on individual performance rather than group efforts because, you know it talks about know productivity you know you do majority of the job and increase the productivity increase your output, but you know rather it is not appreciating the group efforts.

Now, in an organization now it is very relevant that you know everybody team-based work group-based work is been appreciated. So, it's not talking about it. So, that is a definitely a limitation of scientific management, it has made division of employees as efficient and non efficient categories.

You know it is actually talking about classify this is an efficient group and non efficient groups, categories they also say it a right some employees are not you know, not suitable for doing this job and they are classifying rate and that is a limitation alright.

Then it gives Thurston's specialization and repetition of work to increase the productivity with create monotony and restrict innovations. So, as I said you know though it is been seen as the one of the best ways to look at there is an efficiency, but it had also been refuted in the other form as limitation. For example, you know you are not actually allowing people to bring innovations bring creativity.

For example, you actually defined this is the way to do a job do not deviate in a method you do. But for example, some organization if gives a lot of opportunity to can you do some innovations some people in the soft floor can bring up some innovative way of you know producing, better results in a shorter time or you know with a lesser resource then that is a creativity.

But the moment you say do not talk about all these you have to do only a defined way; it actually restricts the you know creativity on innovations right that is what the limitation yes. Of course, it is a limitation but though, but you know the output of the scientific management is really high compared to you know it will outweigh the you know limitations then.

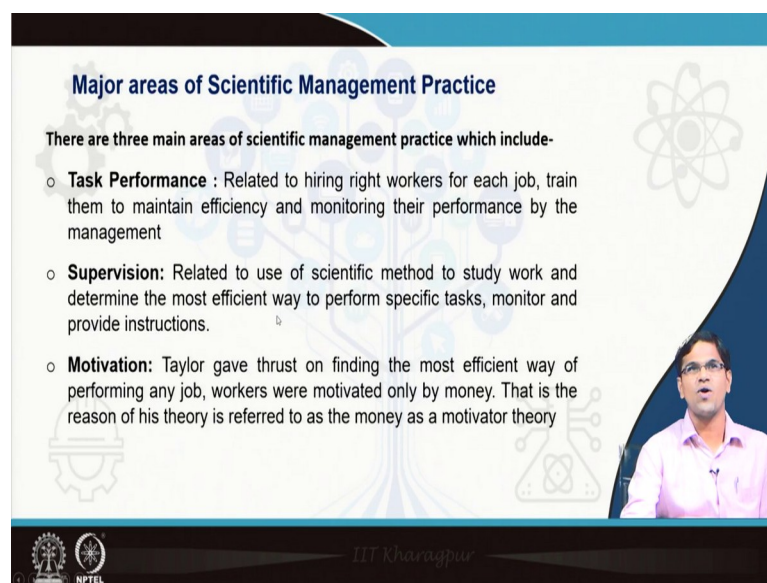
Will move on to the other limitations as well. So, it actually neglects the human factor as it encourages work for money, then work as human resources. You know it says you know you say associated payment, then you pay for the money rather than you know

work as a human resource. You know they are not appreciating as a human resource rather than you see you produce and then you get it ok.

There is a limited chance to creativity among the employees as they are guided by the manager and resulting to frustrations yes. As I said there is a clear instruction you follow the instructions. So, that is why you know as we are coming back to the same point again you know though it is the creativity is been limited.

Because, it says man you need to obey the rules of the managers or your organizations, just follow the instructions you cannot you know talk something more or something beyond or you cannot bring innovations, you cannot apply your own way of doing things. Because you are governed by set of rules. It says you follow the same sequence a b c means you need to follow a b c; you cannot go a b and d you know it is restricted. So, means I am not bringing any creativity right ok.

(Refer Slide Time: 26:02)



Major areas of Scientific Management Practice

There are three main areas of scientific management practice which include-

- **Task Performance** : Related to hiring right workers for each job, train them to maintain efficiency and monitoring their performance by the management
- **Supervision**: Related to use of scientific method to study work and determine the most efficient way to perform specific tasks, monitor and provide instructions.
- **Motivation**: Taylor gave thrust on finding the most efficient way of performing any job, workers were motivated only by money. That is the reason of his theory is referred to as the money as a motivator theory

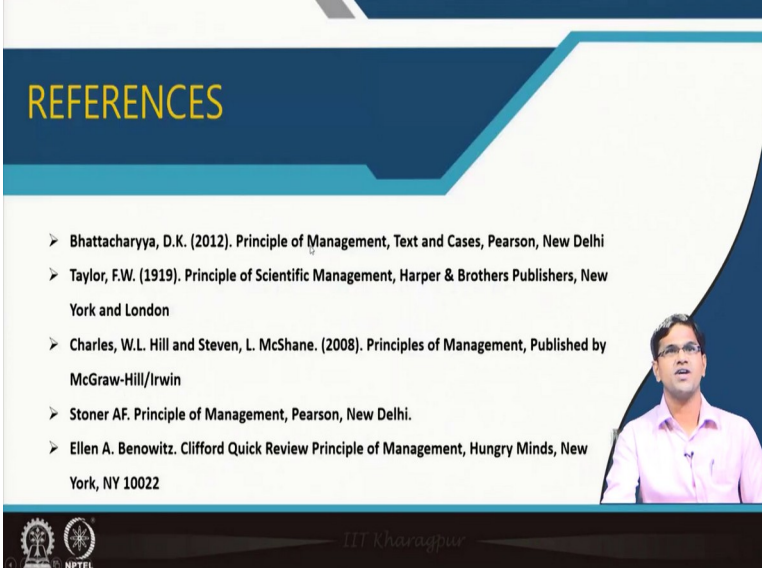
The slide features a blue and white color scheme with a background of faint icons related to science and management. A small inset video of a man in a pink shirt is visible in the bottom right corner of the slide area. Logos for IIT Kharagpur and NPTEL are at the bottom.

So, major areas of scientific management practices, there are three main areas of scientific management it is task performance. You know it is talking about related to hiring a right worker for each job, train them to maintain efficiency monitoring their performance by the management. And supervision related with scientific method of study work and determine most efficient way to perform these specific tasks and monitor and provide instructions.

You know it always says you know they do a scientific study and then you are able to identify the best possible way to reach your target right motivation. Taylor also thrust on finding most efficient way of performing any job workers were motivated only by money. You know as I said it is also related with the paying based on your quantum of the job done, not on the any other perspectives.

That is the reason of this theory being referred to as the money as a motivator theory because, it is not talking anything more it is not talking about you know, leadership it is not talking about getting more opportunities it is only restricting towards the payment right piece rate right.

(Refer Slide Time: 26:58)



The slide features a dark blue header with the word 'REFERENCES' in yellow. Below the header is a list of five references, each preceded by a right-pointing arrow. A small video inset in the bottom right corner shows a man in a light pink shirt speaking. At the bottom of the slide, there are logos for IIT Kanpur and NPTEL.

REFERENCES

- Bhattacharyya, D.K. (2012). Principle of Management, Text and Cases, Pearson, New Delhi
- Taylor, F.W. (1919). Principle of Scientific Management, Harper & Brothers Publishers, New York and London
- Charles, W.L. Hill and Steven, L. McShane. (2008). Principles of Management, Published by McGraw-Hill/Irwin
- Stoner AF. Principle of Management, Pearson, New Delhi.
- Ellen A. Benowitz. Clifford Quick Review Principle of Management, Hungry Minds, New York, NY 10022

IIT Kanpur
NPTEL

These are the references and today we learnt about the scientific management which is very important irrespective of any discipline you follow.

(Refer Slide Time: 27:01)

CONCLUSION

This lecture session has given clear picture on the concept, basic ideas, general components, principles, techniques, advantages, limitations and major areas of practices. It is expected that learners will be enriched with this knowledge and have confidence on applying in their practice.

IIT Kanpur
NPTEL

I know it is very applicable though this experiment conducted a century ago, but the relevance of scientific management still holds good it has been highly practiced in the industry. And you know unconsciously every one of us are following some of the scientific method of doing things ok. So, hope you guys have enjoyed this session lecture we will meet you in the next lecture.

Thank you.