SCRIPT - QUALITY CONTROL STAGES

Cover Page – Slide 1

I welcome you all to this exciting session on Quality Control Stages.

Learning Outcomes – Slide 2

At the end of this session, it is my belief that we would have achieved the following Learning Outcomes:

- Explain the concept of Quality Control.
- List Quality Control Methods.
- Explain the benefits of Quality Control, and,
- Discuss the Quality Control Stages.

What is Quality Control? – Slide 3

Quality control (QC) is a process through which a business seeks to ensure that product quality is maintained or improved.

Quality control requires the company to create an environment in which both management and employees strive for perfection.

This is done by training personnel, creating benchmarks for product quality, and testing products to check for statistically significant variations.

Quality control involves testing units and determining if they are within the specifications for the final product.

The quality control used in a business is highly dependent on the product or industry, and several techniques exist for measuring quality.

The food industry uses quality control methods to ensure customers do not get sick from their products.

Quality control creates safe measures that can be implemented to make sure deficient or damaged products do not end up with customers.

Quality Control Methods – Slide 4

There are several methods of measuring the performance of quality control. There are several methods of measuring the performance of quality control. But we would be looking at the X-Bar Chart, the Taguchi Method and 100% Inspection Method.

So, lets go into the details of the three methods that we just listed.

1. **X-Bar Chart**

In this method, randomly selected products are tested for the given attribute or attributes the chart is tracking. A common form of a quality control chart is the X-Bar Chart, where the y-axis on the chart tracks the degree to which the variance of the tested attribute is acceptable. The x-axis tracks the samples tested. Analysing the pattern of variance depicted by a quality control chart can help determine if defects are occurring randomly or systematically.

2. **Taguchi Method**

The Taguchi Method of quality control is another approach that emphasizes the roles of research and development, product design, and product development in reducing the occurrence of defects and failures in products. The Taguchi Method considers design to be more important than the manufacturing process in quality control and tries to eliminate variances in production before they can occur.

3. **100% Inspection Method**

This 100% inspection method is a quality control process that involves looking at and assessing all parts of a product. This type of quality control is done to rule out flaws in products. This method is often used to evaluate valuable metals and produce.

Benefits of Quality Control – Slide 5

Here are a few benefits of Quality Control in the manufacturing sector:

1. Customer Loyalty

It should come as no surprise that customers enjoy, appreciate and even demand high-quality products. If your company is not producing items that suit customer standards, they will not hesitate to move to a different company that will.

However, the reverse of this is also true. If your company consistently creates premium-quality products, customers will stick around. They'll develop a sense of loyalty to you and be reluctant to buy other companies' products. To achieve this kind of loyalty, however, you first need to manufacture a great product and that starts with quality control.

2. Gain Referrals

One of the primary benefits of customer loyalty isn't just that you enjoy the business of one repeat customer. It's that this one customer will almost certainly go out and tell their friends what a good experience they had with your products, thus bringing in more customers by way of referral. In an ideal scenario, then, your customer base should grow exponentially with every new customer referred to you. Again, however, it's important to remember that this level of success is dependent on reliable quality control.

3. Reduce Liability

A lawsuit is one of a manufacturing company's worst nightmares. There are few things worse than one of your products working incorrectly and injuring someone, resulting in a lawsuit where your company faces blame for producing a faulty product.

Quality control helps reduce the amount of liability your company might face in these situations. If you can prove your company is taking all necessary and possible steps to ensure the quality and safety of every product, you significantly reduce your risk.

4. Improve Safety

Of course, the only goal isn't to reduce your liability in the event of an accident. For any responsible manufacturer, the bigger goal is to limit the possibility of these accidents in the first place. Quality control can help make that happen. The more checks you have in place to catch mistakes before they make it out of the manufacturing room, the more you'll improve the safety of everyone concerned.

5. Contribute to a More Positive Brand Perception

Every brand, if it gains enough public recognition, will begin to develop a reputation and connotations. Those can be either positive or negative, but either way, they'll grow and become entrenched in people's minds. That means it's up to you to do everything possible to make sure your company's reputation is a good one. You want to be known as a company that cares about their workers' and customers' safety. You want people to perceive your brand as one that only delivers the best. Quality control is where that starts.

6. Avoid Recalls

Recalling a product that's discovered to be defective or problematic is not cheap. It's also an enormous hassle. While no one can accurately prevent these accidents 100 percent of the time, quality control will go a long way towards minimizing these events and saving your company a lot of trouble.

Quality Control Stages – Slide 6

To control the quality of a product, the quality is required to be controlled at various stages of production. Normally they can be:

1. Quality Control at Design Stage.
2. Quality Control at Purchasing Stage.
3. Quality Control at Production Stage.
4. Quality Control after a Product is Sold (Product-Support Services)

We are going to take a look at all the stages in details.

Quality Control at Design Stage – Slide 7

At this stage, the Design department determines the design / specifications for raw materials, components, parts, tools, equipment, processes, or methods of production.

The information regarding quality and quantity of products required by the customer to satisfy their needs is provided by the market research, which is being transformed into the product specifications. Product design should be based on customer needs.

An error at this stage affects the quality of the product adversely and the cost of the production may rise due to the defective material.

Design standards, design drawings, design specifications etc prepared by the committee of the various head can serve the purpose in a better way. The quality control people have to see that standards, specification, and drawings are being properly enforced and updated. The change in Designs, specifications should be done according to the changes in taste and needs of the customers and technological developments.

Quality Control at Purchasing Stage – Slide 8

At this stage, the responsibility for the procurement of materials, components, parts, tools, equipment etc of standard specifications, in a required quantity at a reasonable price rest with the purchase department. Efficient procurement gives better results.

Quality of the product depends upon the efficiency shown in procurement. It does not mean that material should be of best quality because the best quality will cost more and a customer prefers that product, out of so many available, which he considers best for the money he is willing to spend. Sometimes the suppliers do not supply the raw material as per the specification.

The suppliers selected should be after proper evaluation and after reliability. The suppliers who have supplied the material in the past with good quality material should be given first preference. The quality control system or equipment of the suppliers should also be checked to determine their ability to supply quality materials regularly in required quantity.

All the material procured should have a predetermined standard as stated in the Purchase order. Only inspection of the supplies is not enough, because the material may get damaged during the transportation and sometimes substandard material, parts may form the part of total receipt.

Substandard products should not be accepted even though the prices are reduced to a great extent. It damages the goodwill of a manufacturer. The suppliers who do not care for quality and continue to supply materials of inferior quality, even after drawing their attention very often, must be deregistered from the reliable suppliers list. Purchase department can assure the quality if they work carefully.

To assure and maintain quality periodic checking should be carried out. If a separate stores department exists in a company, the storage and responsibility of storage and issues of materials rests with it. If the storage is not done properly than the quality of the material deteriorates in turn the quality of final product is affected. Store departments should handle the material with care to minimize the wastage.

Quality control people should see that strict control is exercised at the purchasing stage and storage facilities are proper.

Control at Production Stage (during the production process) – Slide 9

Production department is responsible for production of quality products as per specification determined by the design department. In the production department, materials are converted into finished products, which must be fit for the intended use.

The quality of a product is affected by the manufacturing processes, tools and equipment and testing and measuring instruments and methods used. The manufacturing processes or methods must be faultless and carefully designed.

The equipment for production and instruments for testing should be properly and carefully checked periodically to assure the quality of the final product. Measuring and testing instruments of standard and well-known manufacturers should only be used to maintain great accuracy. Instrument with precision, accuracy and sensitivity should be used.

The product should be tested at different levels during the production cycle to ensure better quality at low cost. It should be inspected every time when it leaves one operation or one major process so as to locate the defect. The first unit coming out should be checked before the continuation of the product. The information regarding manufacturing equipment, tools etc measuring and testing instruments and the final product should be collected, analysed properly and findings should be provided to quality control people within a reasonable time, so that a manufacturer can take actions at the earliest, if found necessary. Timely information proves to be very useful in quality control.

Quality Control at Delivery and After-Sales-Service Stage – Slide 10

Careful handling, proper storage and systematic packaging saves the product from damage during delivery to customer.

The company must design and implement a logistics delivery system that ensures the finished goods gets to the customer in the intended state and quality.

The quality control at various stages is incorporated to suit a particular company needs and it is not uniform or same for all.

Conclusion – Slide 11

Hey, so in the past few minutes, we have been able to look at:

- Concept of Quality Control
- Quality Control Methods
- Benefits of Quality Control, and,
- Quality Control Stages

Consequently, I would like to conclude with the words of John Ruskin, who stated that ***"quality is not an accident, it is the result of intelligent effort"***

Thank you and Stay Safe. Bye