

The logo of Galgotias University is a circular emblem with a stylized 'G' shape in the center. The 'G' is composed of several curved segments in shades of yellow, orange, and blue. The background of the emblem is a light, textured grey.

**Unit 1:
L-7**

Introduction to Quality

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Learning Objectives

A **control chart** is a graphical tool for monitoring the activity of an ongoing process. Control charts are sometimes referred to as **Shewhart control charts**, because Walter A. Shewhart first proposed their general theory. The values of the quality characteristic are plotted along the vertical axis, and the horizontal axis represents the samples, or subgroups (in order of time), from which the quality characteristic is found.

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WHAT IS PDCA CYCLE

- The Plan-do-check-act cycle is a four-step model for carrying out change. Just as a circle has no end, the PDCA cycle should be repeated again and again for continuous improvement. The PDCA cycle is considered a project planning tool.



- **There are 4 steps in PDCA cycle**
- **Plan**
Recognize an opportunity and plan a change.
- **Do**
Test the change. Carry out a small-scale study.
- **CHECK**
Review the test, analyze the results, and identify what you've learned.
- **ACT**
Take action based on what you learned in the study step.

Plan:

- ❑ The team selects the problem to be solved (or the process to be improved).
- ❑ The problem and objectives are clearly identified.
- ❑ The current situation is analyzed.
- ❑ Solution alternatives are identified, selected and scheduled.



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Do:

- ❑ The solution is tested on a small scale basis.
- ❑ It involves collecting data for later analysis.
- ❑ It also involve measuring progress.
- ❑ It ensures the solution is appropriately tested and benefits are validated before committing to full implementation.



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Check:

- ❑ Involves analyzing the collected data and comparing the actual results against the planned objectives.
- ❑ Allows evaluating how well the solution worked.
- ❑ Allows discussing whether further improvements are possible.
- ❑ Concerned with identifying the unexpected issues, their causes, and gathering and summarizing the key learnings.



You may need to repeat the **Do** and **Check** a number of times until you get the optimum results

Act:

- ❑ Involves acting on the feedback and lessons learned and implementing the solution fully.
- ❑ **It is also concerned with:**
 - Standardizing.
 - Documenting.
 - Sustaining the improved process.
 - Integrating it into the organization's system.



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QUALITY MANAGEMENT METHODOLOGY

Three Stages of Quality management

1-Assessment of quality management processes.

2-General quality data analysis

3-The application PDCA cycle (to solve a specific problem that was considered a priority in the previous step)

QUALITY IMPROVEMENT WITH PDCA

Deming continually emphasized iterating towards an improved system, hence PDCA should be repeatedly implemented in spirals of increasing knowledge of the system that converge on the ultimate goal, each cycle closer than the previous.

CONCLUSION

- PDCA is a powerful tool to obtain TOTAL QUALITY MANAGEMENT in any sector not only in textile.

Summary:

This lecture has introduced the basic concepts of control charts for statistical process control. The benefits that can be derived from using control charts have been discussed. This lecture covers the statistical background for the use of control charts, the selection of the control limits, and the manner in which inferences can be drawn from the charts. The two types of errors that can be encountered in making inferences from control charts are discussed.

References:

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- ASQ(1993). ANSI/ISO/ASQ. *Statistics—Vocabulary and Symbols-Statistical Quality Control*, A3534-2. Milwaukee, WI: American Society for Quality.
- Wadsworth, H. M., K. S., Stephens, and A. B. Godfrey, (2001). *Modern Methods for Quality Control and Improvement*, 2nd ed. New York: Wiley.