



**RZESZOW UNIVERSITY  
OF TECHNOLOGY**



## CHAPTER 2

# 5S

# LEAN MANUFACTURING



Co-funded by  
the European Union

TET - The Evolving Textbook  
Project no: 2022-1-SI01-KA220-HED-000088975



# What is 5S?

5S is a workplace organization method aimed at improving efficiency and process quality. Its name comes from five stages:

- **Sort (Seiri):** Remove unnecessary items.
- **Set in Order (Seiton):** Organize tools and materials for easy access.
- **Shine (Seiso):** Keep the workplace clean and tidy.
- **Standardize (Seiketsu):** Establish standards to maintain organization.
- **Sustain (Shitsuke):** Foster discipline to uphold 5S practices.

5S helps eliminate waste, improve safety, and create a well-organized work environment, supporting the principles of Lean Manufacturing.

**Sangode, P. B.** (2018). [\*Impact of 5s methodology on the efficiency of the workplace: study of manufacturing firms.\*](#)

International Journal of Research in Commerce & Management, 9(12).

**Rizkya, I., Syahputri, K., Sari, R. M., & Siregar, I.** (2019, May). [\*5S implementation in welding workshop—a lean tool in waste minimization.\*](#) In IOP Conference Series: Materials Science and Engineering (Vol. 505, No. 1, p. 012018). IOP Publishing.

## 5S Steps - Sort (Seiri)

Sorting involves separating necessary items from unnecessary ones. Items that are not regularly used should be removed from the workplace to avoid clutter and improve efficiency. The key element of this step is thoroughly analyzing what is essential for daily operations. Eliminating unneeded items allows for better organization and reduces waste.



Tahasin, T. A., Gupta, H. S., & Tuli, N. T. (2021). [\*Analyzing the Impact of 5S implementation in the manufacturing department: a case study.\*](#)

International journal of research in industrial engineering, 10(4), 286-294.

## 5S Steps - Set in Order (Seiton)

This stage focuses on organizing tools, materials, and equipment in a way that ensures easy access. Every item should have its designated place, making it simple to locate what is needed. Logical placement of equipment supports smoother workflows and minimizes time wasted searching for tools. Orderliness enhances efficiency and workplace ergonomics.



Tahasin, T. A., Gupta, H. S., & Tuli, N. T. (2021). [\*Analyzing the Impact of 5S implementation in the manufacturing department: a case study.\*](#)

International journal of research in industrial engineering, 10(4), 286-294.

## 5S Steps - Shine (Seiso)

This step emphasizes maintaining cleanliness in the workplace. Regular cleaning not only improves aesthetics but also helps detect potential issues, such as leaks or equipment damage. A clean work environment enhances safety and employee comfort while showcasing professionalism. Shine is not a one-time cleaning effort but a continual habit.



Rizkya, I., Hidayati, N., Sari, R. M., & Tarigan, U. (2019, October). [\*Evaluation of the leading work culture 5s in industry\*](#). In IOP conference series: materials science and engineering (Vol. 648, No. 1, p. 012003). IOP Publishing.



## 5S Steps - Standardize (Seiketsu)

Standardization involves creating clear rules and procedures to maintain the order and cleanliness achieved in previous steps. Developing visual cues, checklists, and schedules ensures consistent application of 5S methods. This makes organization and cleanliness a permanent aspect of work, leading to greater efficiency and predictability.



**Wani, S., & Shinde, D. (2021).** [Study and Implementation of '5S' Methodology in the Furniture Industry Warehouse for Productivity Improvement](#). International Journal of Engineering Research & Technology, 10(08), 184-191.

# 5S Steps - Sustain (Shitsuke)

Sustain means instilling discipline and habits to uphold the 5S principles. Employee engagement, training, and regular reminders of the benefits are crucial for maintaining standards. This stage also includes continuous improvement to support the organization's development. Without consistency and commitment, implemented changes may be neglected.



Wani, S., & Shinde, D. (2021). [Study and Implementation of '5S' Methodology in the Furniture Industry Warehouse for Productivity Improvement](#). International Journal of Engineering Research & Technology, 10(08), 184-191.

# Benefits of 5S

**Efficiency:** Reduced time spent searching for tools and materials.

**Safety:** Lower risk of accidents due to a clean and organized work environment.

**Quality:** Better organization minimizes the likelihood of errors.

**Motivation:** Employees feel more engaged in an aesthetic and well-ordered workplace.

**Cost Savings:** Reduced waste and inefficiencies lead to lower operational costs.

**Morey, J.** (2020). [\*5S Method and its Implementation in Company\*](#). International Research Journal of Engineering and Technology, 7(2), 892-895.

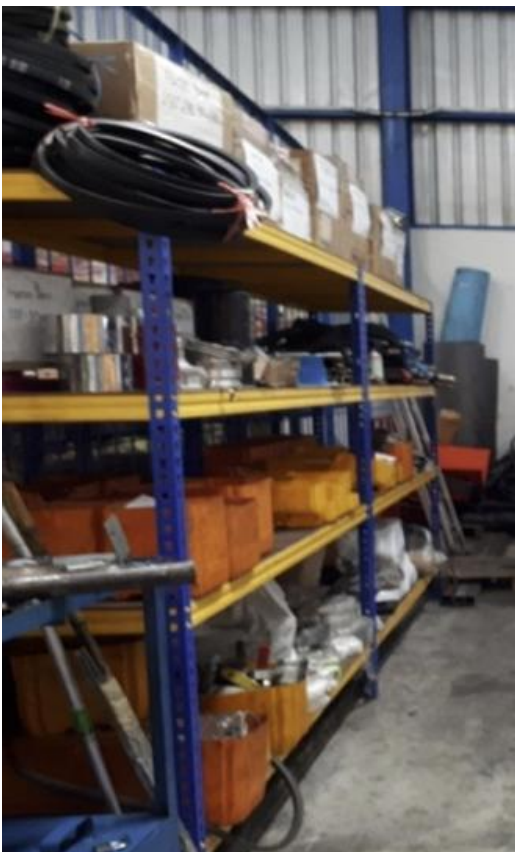
**Subburaman, K.** (2019, March). [\*A case study of 5s implementation in inspection process\*](#). In Proceedings of the international conference on industrial engineering and operations management. IEOM Society International, Bangkok, Thailand (pp. 5-7).

**Singh, K., & Deokar, A.** (2018). [\*Effects of 5S implementation on performance of organization\*](#). International Journal of Business and General Management (IJBGM), 7(2), 1-14.

**Bharambe, V., Patel, S., Moradiya, P., & Acharya, V.** (2020). [\*Implementation of 5S in Industry: a Review\*](#). Multidisciplinary International Research Journal of Gujarat Technological University, 2(1), 12-27.



## Examples of 5S implementation



Rizkya, I., Syahputri, K., Sari, R. M., & Siregar, I. (2019, May). [5S implementation in welding workshop—a lean tool in waste minimization](#). In IOP Conference Series: Materials Science and Engineering (Vol. 505, No. 1, p. 012018). IOP Publishing.

Rizkya, I., Sari, R. M., Syahputri, K., & Fadhilah, N. (2021, March). [Implementation of 5S methodology in warehouse: A case study](#). In IOP Conference Series: Materials Science and Engineering (Vol. 1122, No. 1, p. 012063). IOP Publishing.

Tahasin, T. A., Gupta, H. S., & Tuli, N. T. (2021). [Analyzing the Impact of 5S implementation in the manufacturing department: a case study](#). International journal of research in industrial engineering, 10(4), 286-294.

**Question 1:** What is the primary goal of 5S?

- a) To implement automation and robotics in production
- b) To improve workplace efficiency, safety, and organization
- c) To maximise inventory for future production

**Question 2:** Which of the following is the correct sequence of the 5S steps?

- a) Sort, Shine, Set in Order, Standardize, Sustain
- b) Sort, Set in Order, Shine, Standardize, Sustain
- c) Shine, Sort, Set in Order, Sustain, Standardize

**Question 3:** What is the purpose of the "Sort" stage in 5S?

- a) To organise tools and materials for easy access
- b) To remove unnecessary items from the workplace
- c) To develop visual cues and checklists

**Question 4:** Which of the following best describes the "Shine" stage?

- a) Cleaning the workplace regularly to detect potential issues
- b) Creating standard rules to maintain cleanliness
- c) Sorting items based on their frequency of use

**Question 5:** What does the "Sustain" stage focus on?

- a) Establishing discipline to maintain 5S practices
- b) Ensuring all tools have a designated place
- c) Introducing automation to reduce human effort

**Question 6:** Which of the following is NOT a benefit of 5S?

- a) Lower risk of accidents in the workplace
- b) Increased inventory for future use
- c) Reduced time spent searching for tools and materials

**Question 1:** What is the primary goal of 5S?

- a) To implement automation and robotics in production
- b) To improve workplace efficiency, safety, and organization
- c) To maximise inventory for future production

**Question 2:** Which of the following is the correct sequence of the 5S steps?

- a) Sort, Shine, Set in Order, Standardize, Sustain
- b) Sort, Set in Order, Shine, Standardize, Sustain
- c) Shine, Sort, Set in Order, Sustain, Standardize

**Question 3:** What is the purpose of the "Sort" stage in 5S?

- a) To organise tools and materials for easy access
- b) To remove unnecessary items from the workplace
- c) To develop visual cues and checklists

**Question 4:** Which of the following best describes the "Shine" stage?

- a) Cleaning the workplace regularly to detect potential issues
- b) Creating standard rules to maintain cleanliness
- c) Sorting items based on their frequency of use

**Question 5:** What does the "Sustain" stage focus on?

- a) Establishing discipline to maintain 5S practices
- b) Ensuring all tools have a designated place
- c) Introducing automation to reduce human effort

**Question 6:** Which of the following is NOT a benefit of 5S?

- a) Lower risk of accidents in the workplace
- b) Increased inventory for future use
- c) Reduced time spent searching for tools and materials



**RZESZOW UNIVERSITY  
OF TECHNOLOGY**



## **CHAPTER 2**

# **59**

---

**Thank you for your attention.**

**Dorota Stadnicka**



Co-funded by  
the European Union

TET - The Evolving Textbook  
Project no: 2022-1-SI01-KA220-HED-000088975

<https://tet-erasmus.eu/>