

Industrial Engineering 101

A Directory for Industrial Engineering Articles



Published by **Online Clothing Study**

Introduction

Thank you for downloading this eBook.

This is a mini directory of articles written on the topics **Industrial Engineering in the garment industry** and published on online clothing study blog.

I see readers spend lot of time on industrial engineering archive page searching interested and useful articles. This mini directory is made to help you to connect quickly to the needed articles from your desktop/laptop.

Industrial Engineering (IE) processes and concepts are no doubt a very big field of

learning. But when it comes for industrial engineering in apparel industry, this industry has started implementing IE set up few years ago and is continuously embracing the tools and techniques of industrial engineering to improve process and employees' performance. Where factories have established IE department, have gained lot of benefits and improvements.

When I started my career in the garment manufacturing company in production planning, I felt the need of industrial engineering tools for measuring work, capacity and performance of our employees. No doubt that I had learnt fundamentals of industrial engineering in my apparel production course (NIFT, New Delhi). Still that time I found something was missing.

No source of free learning was there and once I thought internet resource is not for us (garment production and IE people).

I relearned industrial engineering during my management consulting job at Rajesh Bheda Consulting. During that period, I met number of experienced engineers who worked many years in the garment manufacturing industry.

I have practiced a lot of implementing and using of industrial engineering tools and techniques.

While I was learning, and I was building my confidence, I decided to share IE knowledge to everyone who needs it. So I built a tutorial website. Now you have Online Clothing Study.

OnlineClothingStudy.com is the No.1 website in the world that provides free tutorials on industrial engineering in the apparel manufacturing and RMG industry. Though OCS covers other apparel manufacturing related areas.

Keep this directory handy by saving it in your desktop. When you need to know something just open this directory and search the article title. To read the full article, just click the title. (Note: you will be needed internet connection to read the article)

Most of the titles are based on questions asked by OCS readers. List of the topics and discussion is growing day by day. [Check here](#) for latest

articles on IE. You can also participate to OCS forum and post your questions.

I have made categories for topics. Still for quick search use 'Ctrl+F' button and enter your search word to find even quicker.

Have a nice experience while learning Industrial engineering related to apparel industry with us.

This directory was published on Sept 2013. After that I have published many articles on the industrial engineering subject. To read the latest articles on IE in garment industry, check the archive page. I am not adding any new topics in this book. For reading the latest articles visit the [blog archive](#).

In 2021, I have published a book on apparel industrial engineering. The book title is Industrial Engineer's Digest: Learn, Practice and Improve Factory Performance. You can buy this book from Amazon store and keep it with you to learn industrial engineering subject.

Thank you again for downloading this IE article directory.

Prasanta Sarkar

A. Industrial Engineering Basics

1. [Work Study and Industrial Engineering Terms and Definitions](#)
2. [Characteristics of a good workstation layout](#)
3. [What is Man to Machine ratio in garment industry?](#)
4. [Why Do We Need to Measure Man to Machine Ratio in Garment Industry?](#)
5. [Full Form of SAM and SMV in Apparel Industry](#)
6. [How to Calculate SAM of a Garment?](#)
7. [Difference Between SAM and SMV](#)
8. [How to Calculate Cutting SAM?](#)
9. [KPIs for Garment Manufacturers](#)
10. [KPI Dashboard: An Effective Reporting Tool for Garment Factories](#)
11. [How to Increase Line Efficiency in a Piece Rate Factory?](#)

12. [Necessary Production Reports for a Garment Factory](#)
13. [Production Process Flow of a Sportswear Manufacturing Company](#)
14. [Order Completion Report - An Important MIS Report for Garment Exporters](#)
15. [What is on-standard efficiency and overall efficiency?](#)
16. [What is Non-Productive Time \(NPT\) and How to Track NPT?](#)
17. [4 Killer Non-Productive Measures in Garment Manufacturing](#)
18. [What are Pitch Time, Pitch Diagram and how to make a Pitch Diagram?](#)
19. [Work aids and equipments for garment manufacturing industry](#)
20. [What is Productivity?](#)
21. [How to Calculate Thread Consumption for Garments?](#)
22. [How to do Method Study for garment operations?](#)
23. [Garment Production Systems](#)

B. Line Balancing

24. [What is Line Balancing?](#)
25. [How to do Line balancing using Operator Skill History?](#)
26. [How to Balance a Traditional Sewing line?](#)

C. Costing

27. [Method of Calculating Cost per Minute of a Sewing Line](#)
28. [How to Find Labor Cost for Garment Manufacturing Using Work Measurement Data?](#)
29. [How to Calculate Standard Hours Earned, Operator Efficiency and Labor Cost?](#)
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30. [How to control apparel production cost?](#)
31. [Garment CM cost estimation using SAM or SMV](#)
32. [Actual Garment Production Cost – The way factory calculates it](#)
33. [Garment Production Cost: Actual Cost Vs Cost Per SAM](#)
34. [How Industrial Engineers Do Costing of Garments using Line Efficiency?](#)

D. Operation Bulletin

35. [How to Make an Operation Bulletin for a Garment?](#)
36. [Operation Breakdown and SAM of the Full Sleeve Formal Men's Shirt](#)
37. [Operation Breakdown and SMV of a Trouser](#)
38. [Sample Operation Breakdown of a Jacket](#)

- 39. [Operation Breakdown and SMVs of a Basic Jeans](#)
- 40. [Operation Breakdown and Machine Layout for Bra Manufacturing](#)

E. Operator Incentive Scheme

- 41. [Sewing Operator Incentive Schemes and Technology Solutions](#)
- 42. [Incentive Systems for Garment Industry](#)
- 43. [Case Study: An Incentive Scheme for Sewing Operators](#)
- 44. [Incentive Scheme for Sewing Operators – Part #1](#)

F. Operator Training and recruitment

45. [Systematic Training of Sewing Industry Operators – An Introduction](#)
46. [Sewing Operator Recruiting Test Procedure](#)
47. [Implementation of Systematic Training for Sewing Industry Operators](#)
48. [Sewing Operator Training, Its Benefits and Operator Training Modules](#)
49. [How to Do Skill Upgrading for Machine Operators?](#)

G. Calculations and performance measurement

50. [How to Calculate Production Capacity of a Factory?](#)
51. [How to calculate operator efficiency at work?](#)
52. [How to calculate efficiency of a production batch or line?](#)
53. [How to Calculate Efficiency of a Line that Produces Multiple Styles in a Day?](#)

54. [How to Estimate Garment Production?](#)
55. [How to Calculate WIP level in Cutting, Sewing and Finishing Section?](#)
56. [How to Calculate Manpower Requirement of Finishing Section?](#)
57. [How to Calculate Helper Requirement for a Sewing Line](#)
58. [How to Calculate no. Of Machines, Working Days and Output Based on Order Quantity?](#)
59. [How to Determine Machines Requirement for a New Factory?](#)
60. [What should be the Production in Pieces/Machine for a Formal Trouser & Formal Shirt?](#)
61. [How to Prepare Monthly Efficiency Report of a Sewing Line?](#)
62. [How to calculate Machine requirement for garment to be made in an assembly line?](#)
63. [How to Measure Line Performance When You Don't Know Product SMV?](#)
64. [How to Plan Daily Line Output from Garment SAM?](#)
65. [How to Measure Labor Productivity?](#)
66. [How to determine number of sewing line needed for an order?](#)

67. [Formula for Calculating Sewing Room Capacity](#)

H. Miscellaneous

68. [Industrial Engineer's Job Profile in the Apparel Industry](#)

69. [Role of Industrial Engineers in Garment Production Management](#)

70. [Ratio of Sewing Machines used in a Shirt Factory](#)

71. [Line Efficiency: A Magical Measure for Garment Manufacturers](#)

72. [Bundle Tickets, Individual Performance Bonus and Grouping of Operations](#)

73. [How to Allocate Sewing Operators for Different Styles?](#)

74. [How Line Supervisors do Hourly Target Follow up?](#)

75. [7 Ways to Reduce WIP from Bottleneck Operations](#)

76. [9 Ways to Increase Sewing Operator Efficiency](#)
77. [20 Ways to Improve Productivity in Garment Production](#)
78. [How to Make Production Plan without SAM Value?](#)
79. [Which Attachment to use for Making Gather and Simultaneously Attach to a Panel?](#)
80. [Efficiency Levels of Major Apparel Manufacturing Clusters in India](#)
81. [Machines used for Denim \(Jeans\) Manufacturing](#)
82. [How to reduce line setting time for assembly line?](#)
83. [Which payment system is better for sewing operators in garment manufacturing - Piece Rate or Salary based?](#)
84. [Which Machines are needed to make Basic Tee Shirts?](#)
85. [Which Machines are needed to make Basic Polo Shirts?](#)
86. [Standard Minutes \(SAM or SMV\) for Few Basic Garment Products](#)
87. [Which production system is better - A Conventional line Or a Modular line?](#)

88. [Video: Sewing Machine attachment and Guides](#)
89. [Sewing Process Flow Chart for Crew neck T-Shirt](#)
90. [The Concept of Operator's Performance Rating](#)
91. [Use of Takt Time in Apparel Industry](#)
92. [How to do Time Study for garment operations?](#)
93. [What is Work Sampling?](#)
94. [Case Study: Work Sampling for Sewing Floor](#)
95. [Comparison between Progressive Bundle System and Unit Production System \(UPS\)](#)
96. [How to show line efficiency when there is no loading to a Line?](#)
97. [Operations, Seams and Sewing Machines Database for Basic Products now on the Web](#)
98. [What is skill Matrix for Sewing Operator?](#)
99. [How to Grade Sewing Operators?](#)
100. [What is GSD System?](#)

101. [Can anybody Hit 100% Efficiency of GSD SAM?](#)
102. [How to Get Training on General Sewing Data \(GSD\)?](#)
103. [How Lucrative Your Attendance Bonus System is and what is its Impact?](#)
104. [Secret Behind Calculation of Machine Time in SAM](#)
105. [How to Find Actual RPM of the Machines running on the Floor?](#)
106. [How to Calculate Sewing Machine RPM?](#)
107. [How to Estimate Sewing Time by Machine RPM?](#)
108. [8 Preferred Lean Manufacturing Tools for Garment Industry](#)
109. [Selection of Improvement Projects and Project Implementation Method](#)

End note

This is not the end of the list. I am continuously writing articles on this topic. [Check here](#) for latest articles on IE.

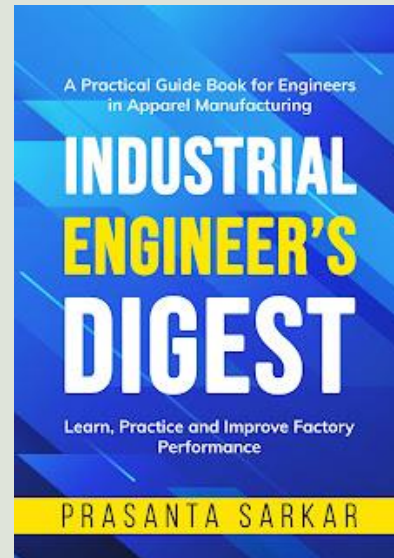
Send me mail if you have any question in your mind or you can write me just to say Hi! You can also suggest me a topic on which you want to explore your knowledge related to the garment industry.

Thank you again for using this directory and I wish you great success in your career.

Prasanta Sarkar

prasanta@onlineclothingstudy.com

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