LEAN CONCEPT OF HYBRID AUTOMATION ASSEMBLY LINE X CO. USING LINE BALANCING AND ECRS TECHNIQUE

A THESIS

Submitted in Partial Fulfillment of the Requirements for the Bachelor Degree of Engineering in Industrial Engineering

JEREMY DESMOND JORI

13 14 07387

INTERNATIONAL INDUSTRIAL ENGINEERING PROGRAM

FACULTY OF INDUSTRIAL TECHNOLOGY

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IDENTIFICATION PAGE

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Submitted by

Jeremy Desmond Jori

13 14 07387

have been declared clarified on

Faculty Supervisor,

Theodorus B. Hanandoko, S.T., M.T.

Co- Faculty Supervisor,

Ag. Gatot Bintoro., S.T., M.T.

Board of Examiners,

Chairman,

Theodorus B. Hanandoko, S.T., M.T.

Secretary,

Ag. Gatot Bintoro., S.T., M.T.

Member,

Deny Ratna Yuniartha, S.T., M.T.

Member,

Dr. Yosephine Suharyanti, S.T., M.T.

Yogyakarta,

Dean of Faculty of Industrial Engineering

Universitas Atma Jaya Yogyakarta

Dr. A. Teguh Siswantoro

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I, the undersigned

Name : Jeremy Desmond Jori

Student Number : 13 14 07387

Would like to certify that the research entitled "Lean Concept of Hybrid Automation Assembly Line X Co. using Line Balancing and ECRS Technique" has not already been submitted for any other degree. I certify that to the best of my knowledge and belief, this thesis which I wrote does not contain the works of parts of the works of other people, except those cited in the quotations and bibliography, as a scientific paper should.

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Jeremy Desmond Jori

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Hopefully, this thesis might be useful for all readers.

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Author

Jeremy Desmond Jori

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ABSTRACT

X Co. Ltd. is an industrial company that running in electronical device that already well known about their quality of HDD (Hard Disk Drive) for computer and another storage devices. Lean approach and technique that have been used to improve in X Co. Lean technique lately in the production line, Lean is really helpful to achieve their targeted cycle time in the production line. Method to conduct lean technique in the production line is line balancing and ECRS (Eliminate, Combine, Re-arrange, and Simplify) technique which can modify and improve some process steps in the production line.

Target that have been approached by improving labor productivity and unit per hour in the assembly production line, which those can be done by eliminating some worker or reducing cycle time for improving the production line. Some method of line balancing and Lean already been applied in the production line, which in this case is improving hybrid automation assembly line that consists of man and machine, cycle time in the production line whether in the main production line called in-line and support operator in the production line called off-line. After the implementation and option have been calculated there are some reducing HC in the in-line Apollo hybrid automation line by reducing 1 operator in the Gasket Install and there are some productivity HSA increase 6% from the calculation 28.57 HSA / HC before become 30.25 HSA / HC after ECRS technique has been applied. Meanwhile in the off-line there are some improvement from 39 HC needed become 36 HC by combining some jobs in the Material Handling operator in the support line which lead into increasing 7% of labour productivity, thus saving the company cost by $20,400/ year from in-line and $61,200/ year from off-line accordingly.

Keyword: Lean Approach, Lean Technique , Line Balancing, ECRS , Productivity