

**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**



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IDENTIFICATION PAGE

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DIGITAL CO. USING LINE BALANCING AND ECRS TECHNIQUE

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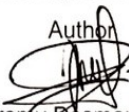
Praise and great gratitude submitted to Jesus Christ because of his grace and blessing that thesis entitled "Lean Concept of Hybrid Automation Assembly Line X Co. using Line Balancing and ECRS Technique" can be done. This thesis is as requirement in accomplishing Bachelor of International Industrial Engineering Degree in Universitas Atma Jaya Yogyakarta.

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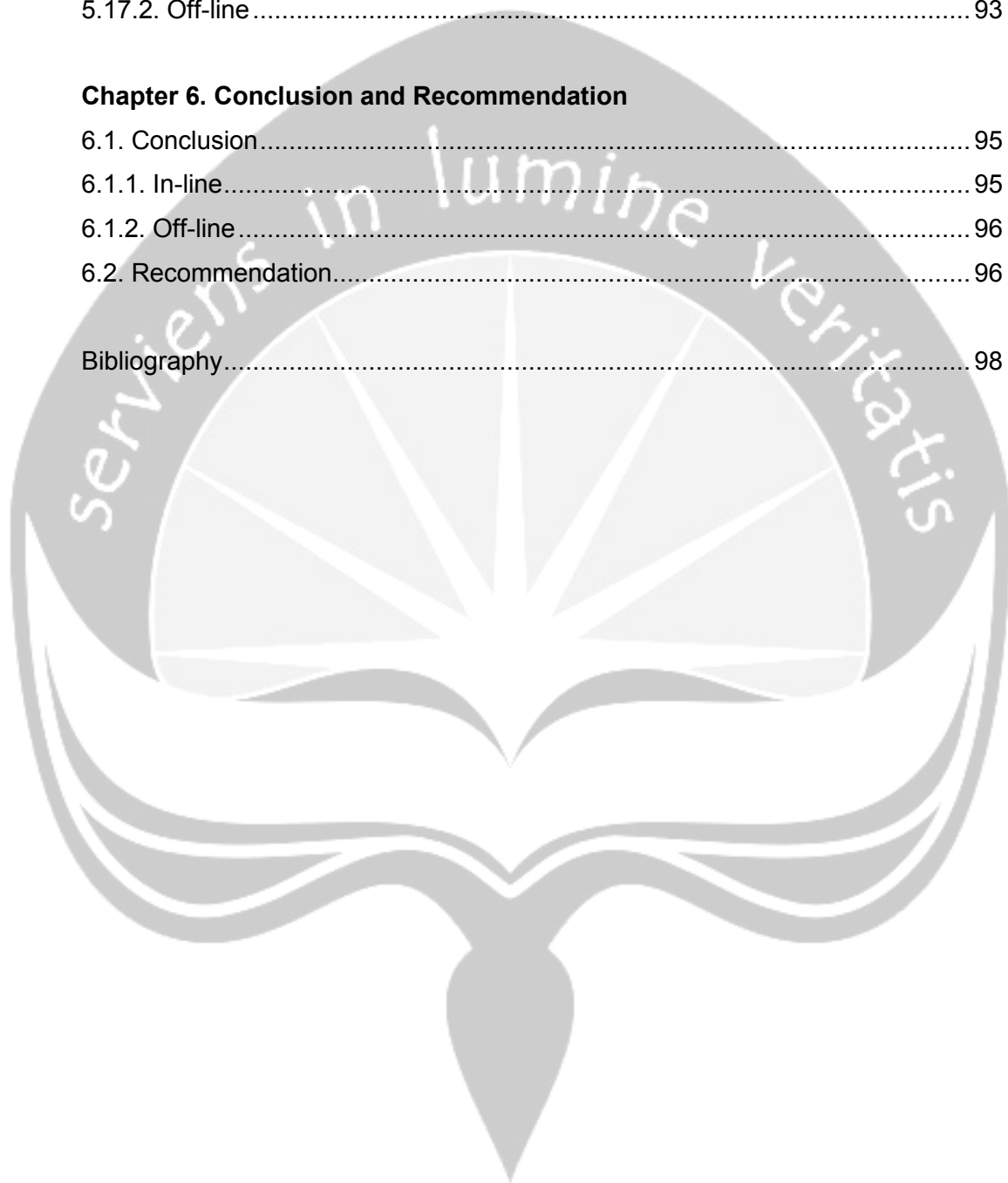
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Appendix 1. Loading Cycle Time

Appendix 2. Material Handling Cycle Time

Appendix 3. Loading 4HD and 6HD

Appendix 4. Current and Propose Simulation Detail

Appendix 5. Flow Support Line



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