

**AN APPROPRIATE LOT SIZING TECHNIQUE FOR INVENTORY POLICY  
PROBLEM WITH DECREASING DEMAND**

**A THESIS**

**Submitted in Partial Fulfillment of the Requirement for the Bachelor Degree  
of Engineering in Industrial Engineering**



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2015**

**IDENTIFICATION PAGE**

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Submitted by

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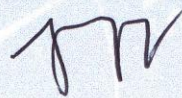
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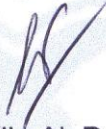
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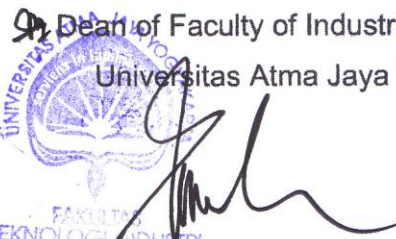



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## DECLARATION OF ORIGINALITY

I certify that the research entitled “An Appropriate Lot Sizing Technique for Inventory Policy Problem with Decreasing Demand” in this thesis has not 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.

In addition, I certify that I understand and abide the rule stated by the Ministry of Education and Culture of The Republic of Indonesia, subject to the provisions of Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 17 Tahun 2010 tentang Pencegahan dan Penanggulangan Plagiat di Perguruan Tinggi.

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## ABSTRACT

The thesis entitled “An Appropriate Lot Sizing Technique for Decreasing Demand Problem” began with problem in Materials Department of Hard Drive Manufacturer. They wanted to avoid the high total cost from ordering and holding the materials those were decreasing and at certain time would be in ‘end of life’ phase. The problem was considered as decreasing demand problem with dependent demand characteristic and followed exponential distribution. The problem could be solved with Material Requirements Planning. One of the tools in Material Requirements Planning was Lot Sizing Technique. Lot Sizing Technique was used to determine the order quantity based on minimum Total Cost (Ordering and Holding Cost). There were only few researches conducting Lot Sizing Technique to solve inventory policy with decreasing demand. A research from Pujawan and Kingsman (1994) tried to solve Lumpy Demand problem using lot sizing technique. Their research was adapted to solve the decreasing demand problem with dependent demand characteristic. There were 5 lot sizing techniques applied in this research: Silver Meal 1, Silver Meal 2, Least Unit Cost, Part Period Balancing, and Incremental technique. There were 5 Suspensions analyzed in this research

Considering the dependent demand characteristic, there were 2 solution models applied to check which lot sizing technique gave the minimum total cost. First solution model treated the parents and components in different way, parents demand were solved using Lot For Lot technique, while the components were solved using 5 different lot sizing techniques. The result represented Incremental technique provided the lowest total cost. The second solution model treated the same way for both parents and components. They were solved by using 5 different Lot Sizing Techniques. The result represented Incremental technique provided the lowest total cost.

From those models, it could be concluded that: the inventory policy with decreasing demand problem and considered as dependent demand solved by using Incremental lot sizing technique.

Keywords : Decreasing Demand, Materials Requirement Planning, Lot Sizing Technique, Ordering Cost, Holding Cost.