

**IMPROVING THE OVERALL EQUIPMENT EFFECTIVENESS (OEE)
OF DRUM TESTING MACHINE IN LABORATORY OF TIRE
MANUFACTURING USING FMEA AND PFMEA**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Drum testing is an equipment to test tire capability in the highway prototype in the tire company. Overall Equipment Effectiveness (OEE) was used to measure the productivity of the equipment. OEE has been experiencing a decline since Jun 2019 until June 2020 and has not achieved target since.

The objectives of this research are to increase the OEE to achieve the target and to determine the fixed parameter in the OEE calculation at the Drum Testing. A Process Failure Mode Effects Analysis (PFMEA) and Failure Mode Effects Analysis (FMEA) help to identify potential failure mode and its consequences, and formulate improvement solution to achieve OEE target by improving drum testing machine. Furthermore, an ideal target should be customized based on year of manufacture and brand of machine. This research showed PFMEA and FMEA successfully improve the OEE efficiency for five machines increases ADT1 from 28.3 to 33.6%, ADT2 70.0% to 87.6%, ADT3 76.19% to 85.0%, ADT4 57.6 to 81.5%, ADT5 36.16% to 48.6% and an average increase of 13.6% so that the average OEE from 53.6% to 67.2%, On average, the five machines achieve the company's target, but in terms of machine units there are still things that have not been achieved, namely the DDT1 & DDT5 machines, that's where further improvement is needed.

Keywords: Overall Equipment Effectiveness (OEE), Failure mode effect Analysis (FMEA), Process Failure mode effect Analysis (PFMEA), Drum Testing.



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DEDICATION

Specially dedicate to God and
My beloved Parents, my husband Iwan Suhanda and my daughter Laurent Natalie
Wijaya



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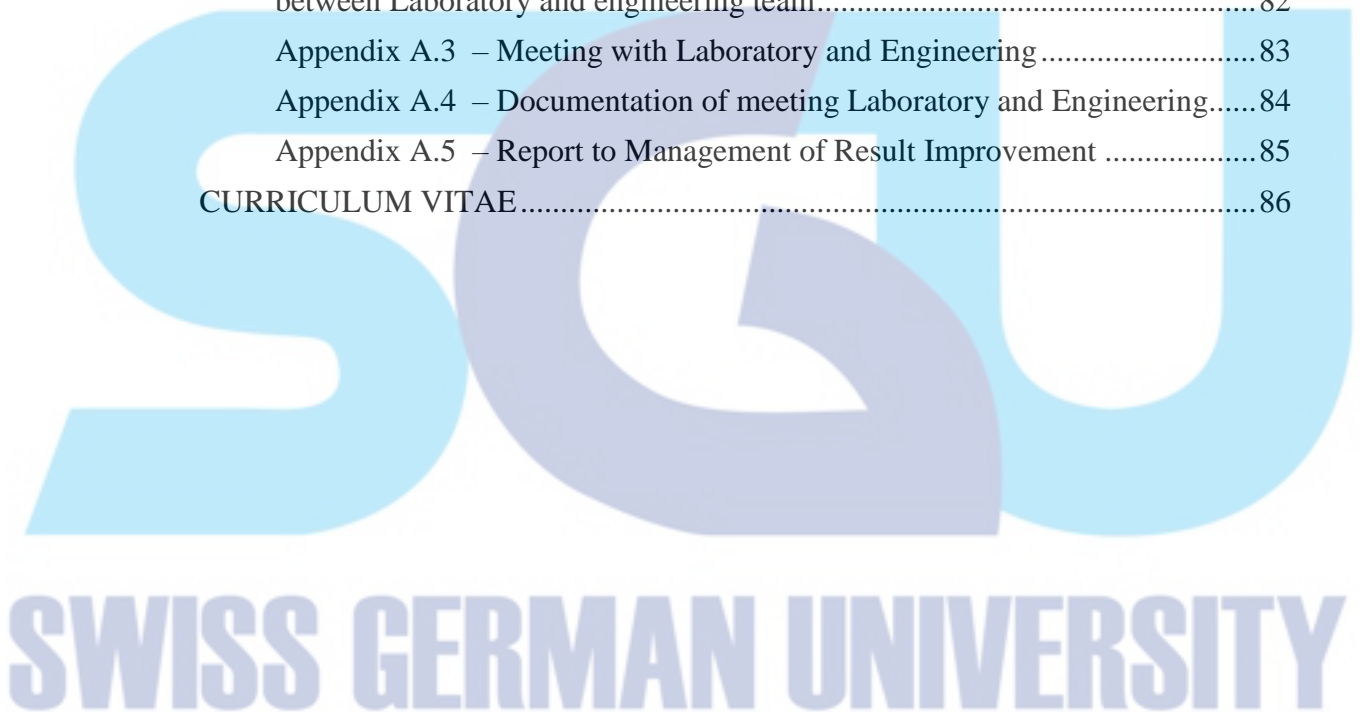
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