

## ABSTRAK

Judul : Implementasi Metode OEE dan FMEA untuk Meningkatkan Kinerja Mesin CNC Milling di PT. XYZ

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Program Studi : Teknik Industri

PT. XYZ merupakan perusahaan manufaktur yang mengkhususkan diri dalam pembuatan produk *custom mechanical component*. Kondisi nyata yang terjadi pada PT. XYZ saat ini adalah banyaknya order yang mengalami keterlambatan dari *due date* yang disepakati. Keterlambatan pengiriman ini disebabkan kinerja mesin produksi yang tidak optimal. Untuk menyelesaikan permasalahan fasilitas produksi tersebut dilakukan evaluasi dengan metode *Overall Equipment Effectiveness* dan *Failure Mode and Effect Analysis*. Hasil nilai OEE mesin Wele pada periode Januari-Juli 2019 sebesar 70,15% dengan *availability* 83,70%, *performance efficiency* 89,98%, dan *rate of quality* 93,14%. Penyebab tidak idealnya nilai OEE disebabkan oleh dua faktor *Six Big Losses* yang memberikan kontribusi terbesar yaitu *setup and adjustment losses* 53,28% dan *idling and minor stoppages* 26,71%. Menggunakan analisis *fishbone* diketahui 11 akar masalah besarnya *setup and adjustment losses*, dan *idling and minor stoppages* disebabkan oleh 7 akar masalah. Penyebab dua *Six Big Losses* terbesar yang sudah diketahui, dibuatkan *Failure Mode And Effect Analysis* untuk mengetahui usulan perbaikan yang dapat dilakukan. Nilai RPN tertinggi dari *setup and adjustment losses* adalah aktivitas pencekaman benda kerja mengharuskan mesin berhenti lama dengan RPN sebesar 294, sedangkan *idling and minor stoppages* adalah berhentinya proses *machining* karena *cutting tool* pecah/patah yang disebabkan oleh strategi *machining* yang salah dengan RPN sebesar 280.

Kata kunci:

*Overall Equipment Effectiveness, Diagram Pareto, Diagram Fishbone, Failure Mode and Effect Analysis, Risk Priority Number*

**ABSTRACT**

*Title : Implementation of OEE and FMEA Methods to Improve Machine Performance of CNC Milling at PT. XYZ*

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*PT. XYZ is manufacturing company that specializing in mechanical component custom. The conditions that occur in PT XYZ are the number of order getting delayed from the due date. The delivery is getting delayed because of suboptimal performance of the production machine. To resolve the problem of the production facility need to conduct an evaluation by the method of Overall Equipment Effectiveness and Failure Mode & Effect Analysis. The result from OEE Wele machine in January – July 2019 period was 70,15% with 83,70% of availability, 86.54% of performance efficiency and 93.14% a rate of quality. The causes of OEE because of two factor from Six Big Losses that provide the largest contribution which are setup and adjustment losses 53,28% & idling and minor stoppages 26,71%. Using fishbone analysis is known that 11 root problems are setup and adjustment losses, idling and minor stoppages are caused by 7 root problems. The causes of the two largest known Six Big Losses are made by Failure mode and Effect Analysis to find out possibilities of improvement. The highest RPN value from setup and adjustment losses are the gripping of work unit activity which requires the machine to stop for a long time with 294 of RPN, while idling and minor stoppages are the cessation of machining process because of the broken cutting tool caused by wrong machining strategy with 280 of RPN.*

*Key words:*

*Overall Equipment Effectivness, Diagram Pareto, Diagram Fishbone, Failure Mode and Effect Analysis, Risk Priority Number*