

ISSN: 1985 - 3157

Vol. 6 No. 2

July - December 2012

JOURNAL OF

**Advanced
Manufacturing
Technology**

AMT

**JOURNAL OF
ADVANCED MANUFACTURING TECHNOLOGY**

Contents

Volume 6

Number 2

July-December 2012

<i>No.</i>	<i>Title</i>	<i>Page</i>
1.	Machining Model of Ti-6Al-4V Titanium Alloy using FEM Simulation <i>Hadzley, M.M.A., Raja Izamshah, R.A., Amran, M.M.A.</i>	1
2.	Design and Analysis a New Materials of Gasket Pipping Using Waste Rubber Tyres and Coconut Coir Fibre. <i>Dan, M.M.P., Aaron Yu, L.,</i>	11
3.	Interrelationship Between Availability With Planning Factor and Mean Time Between Failures (MTBF) in Overall Equipment Effectiveness (OEE) <i>Puvanasvaran, A.P., Teoh, Y. S., Tay, C.C</i>	29
4.	Dimensional Accuracy as a Result of Cutting Parameters and Machine Tool Rigidity in Dry Turning of Medium Carbon Steel <i>Rahman, M.A., Elfi, R.I.F., Dan, M.M.P.,Baharudin, A.B.,Azureen, M.N.</i>	39
5.	Lean Six Sigma Approach for Labour Productivity Improvement at Final Test Semiconductor Manufacturing <i>Nizam, M.M.A.R., Rohana, A., Norlymalis, J.K.</i>	51
6.	Study of Bollard Pull Harbour Tug: Focuses on Stability and Straight Movement <i>Dan, M.M.P., Khairul Fikhri, K.A.</i>	67
7.	The Role of Fuzzy Logic Systems for Control of The Pneumatic Valve of B Bottle Washer in Beverage Companies, Specifically The Kronos Group of Companies <i>Mushiri, T., Chirinda, N.,</i>	83
8.	Design Crash Cushion Using Waste Tire for Toll Plaza Barrier <i>Dan, M.M.P., Fadhli Akmal, A.M.,</i>	97
9.	Genetic Algorithm GA to Optimize Machining Parameters in Turning Operation: A review <i>Mohamad, B.M. , Adnan, J.A., Nizam, M.A.R.,</i>	109

INTERRELATIONSHIP BETWEEN AVAILABILITY WITH PLANNING FACTOR AND MEAN TIME BETWEEN FAILURES (MTBF) IN OVERALL EQUIPMENT EFFECTIVENESS (OEE)

Puvasvaran, A.P., Teoh, Y. S., and Tay, C. C.,

Faculty of Manufacturing Engineering,
Universiti Teknikal Malaysia Melaka
Locked Bag 1752, Durian Tunggal
Melaka, Malaysia

Email: punesh@utem.edu.my

ABSTRACT: One of the limitations of Overall Equipment Effectiveness (OEE) implementation in traditional approach is the lack of planning direction. The study is carried out in an aerospace plane part-manufacturing company to examine the efficiency of planner in affecting the machine utilization. The time data of Autoclaves is acquired from the computerized recording system. The Autoclaves with constant curing time are evaluated to calculate availability using total calendar-time approach. The OEE value of this study is the multiplications of four elements as availability, performance ratio, quality ratio and the planning factor. The performance ratio and quality ratio are always 100% due to constant cycle time (ideal cycle time) and non-defect production. The planning factor is defined as ratio of loading amount with respect to the maximum capability of autoclave. This is to promote the concept of On Time In Full (OTIF). After that, the scheduling, planning and control of production based upon the OEE data obtained are demonstrated and explained in details. The breakdown time is then estimated using Mean Time between Failures, MTBF, based on the availability obtained, and the frequency of preventive maintenance is suggested. In short, the significance and novelty of this study is the new definition of planning factor in terms of the panel number loaded over the maximum capability instead of time unit like in traditional approach. This enables the equipment with constant and fixed cycle time like Autoclave to be evaluated in varying planning factor to highlight the necessity of more effective planning.

KEYWORDS: Overall Equipment Effectiveness (OEE), Planning factor, Availability, total calendar-time approach, Mean Time Between Failures (MTBF), Preventive maintenance.

**JOURNAL OF
ADVANCED MANUFACTURING TECHNOLOGY**

Contents

Volume 6 Number 2 July - December 2012

1. **Machining Model of Ti-6Al-4V Titanium Alloy using FEM Simulation**
Hadzley, M.M.A., Raja Izamshah, R.A., Amran, M.M.A.
2. **Design and Analysis a New Materials of Gasket Pipping Using Waste Rubber Tyres and Coconut Coir Fibre**
Dan, M.M.P., Aaron Yu, L.
3. **Interrelationship Between Availability With Planning Factor and Mean Time Between Failures (MTBF) in Overall Equipment Effectiveness (OEE)**
Puvasasvaran, A.P., Teoh, Y. S., Tay, C.C.
4. **Dimensional Accuracy as a Result of Cutting Parameters and Machine Tool Rigidity in Dry Turning of Medium Carbon Steel**
Rahman, M.A., Elfi, R.I.F., Dan, M.M.P., Baharudin, A.B., Azureen, M.N.
5. **Lean Six Sigma Approach for Labour Productivity Improvement at Final Test Semiconductor Manufacturing**
Nizam, M.M.A.R., Rohana, A., Norlymalis, J.K.
6. **Study of Bollard Pull Harbour Tug: Focuses on Stability and Straight Movement**
Dan, M.M.P., Khairul Fikhri, K.A.
7. **The Role of Fuzzy Logic Systems for Control of The Pneumatic Valve of B Bottle Washer in Beverage Companies, Specifically The Krones Group of Companies**
Mushiri, T., Chirinda, N.
8. **Design Crash Cushion Using Waste Tire for Toll Plaza Barrier**
Dan, M.M.P., Fadhli Akmal, A.M.
9. **Genetic Algorithm GA to Optimize Machining Parameters in Turning Operation: A review**
Mohamad, B.M. , Adnan, J.A., Nizam, M.A.R.

