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Faculty of Industrial Technology

Department of Industrial Engineering

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Improving Production Planning Through The Use Of Computerised Process Planning At Radar Metal Industries

Bekezela Ncube

N940967P

Supervisor : Dr Z. B. Dlodlo

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Abstract

The project aims to improve delivery efficiency and order tracking at Radar Metal Industries. This function is under the control of the Production Planning department. However the department has other responsibilities apart from production planning and these end up taking too much time and distracting from the core business of the department. An investigation of the possible causes of the poor delivery record revealed that it was due to little time available for production planning. The investigation revealed that the department spends most of its time doing process planning. It was decided to improve the production planning function by allocating more time to it. As the staff complement could not be increased it was decided to computerise process planning.

Cutting sizes used in the plant are empirical and were obtained from practice. Because there is no handbook listing the cutting sizes a handbook had to be made first. Routines were then made to calculate the cutting sizes. Finally all the routines were coupled with input and output routines and dialog boxes to make a computer program called Simple Intelligent Manufacturing Aid (SIMA). The output from SIMA includes cutting sizes, works orders and memo requisitions.

A beta program Simple Intelligent Manufacturing Aid (SIMA) was made and tested. The testing criteria covered the design of the program with emphasis on maintainability and the performance of the program.

A computer application has been written in Excel using Visual Basic to do the process planning. The output from this program includes cutting sizes, works orders and memo requisitions. Quotations can also be done.

To further reduce the time that the Production Planning department spends on process planning SIMA accepts input from the Sales department. This totally eliminates process planning and writing out works orders for some products. SIMA was tested under laboratory conditions and the results revealed that the cutting sizes were accurate and that the output was also correct. The required time for process planning was reduced from 44% to 25% of the total available time. Production Planning time was increased from 12% to 20% of the available time. Time was also left over for new duties that could be used to actively improve the production system on a continuos basis like work-study. The staff complement in the department has been trained in work-study and has produced the figures that are used currently for the factory capacity and production targets.

By using the Visual Basic a programming environment already available in Excel, it is estimated that savings of around $30 000.00 could be made compared to buying a commercial off the shelf package like Invoice 90 or development environment like Delphi.

With more time being available for production planning it is hoped that the order delivery of the plant will improve.