CHAPTER 1

INTRODUCTION

1. Introduction

Most small and medium-sized enterprises (SMEs) in Thailand face serious production planning and inventory control problems (Yenradee *et al* 2002). This is mainly due to the following: information and data for proper production planning and inventory control not being readily available, and employees are unable or unwilling to collect the data, production planning and inventory control methods seem to be a non-systematic and based on intuitive judgment, and there is a lack of appropriate and affordable software.

MRP systems are available in Thailand, which mainly originate from the USA, Europe and Japan. Software prices range from one to ten million Thai baht (£17,000 to £170,000), which is unaffordable by most Thai SMEs. Often the systems have been designed for general use, applicable to most factories and situations, which means that the system, at a particular factory, may have unnecessary data input forms and data fields. As a result, the system can be over complex, requiring a relatively long implementation period.

For a MRP system to be appropriate for a SME in Thailand, it should only cover the necessary functions in order to be simple and easy to use, it should be inexpensive, and it should be able to be implemented in a short period of time. Development of such systems for SMEs should be done on an individual basis, which requires a considerable amount of planning, consultation, and data collection and analysis, but this is to ensure that the system meets the requirements of the SME.

A way to achieve a simple, low cost MRP system would be to develop the system within the company using rapid development tools that are affordable to most SMEs in Thailand, and are simple enough so the company's own staff to develop the

system. This type of development may require outside consultation if no-one is knowledgeable in MRP logic, MRP systems and their operation.

This thesis aims to document the development of a simple, low cost MRP system within a Thai SME electronics company, highlighting any challenges of such a project. It details the process of development, including the planning stage, the data collection and analysis stages, the drafting of the overall system specification document, the system design stage, and the programming, testing and debugging stages.

For reasons of confidentiality, the identity of the company cannot be revealed, and specific details of the company's products and systems, including the source code of the MRP system, cannot be included within this thesis.

1.1. Problem Statement

Although there are benefits to be had by implementing a MRP system, many SME companies in Thailand find it difficult to find the funding to purchase a solution through consultants or from specialist software companies. A typical MRP solution can range in price from 1 million to 10 million Baht, which is beyond the means of most SMEs in Thailand. Also, a lot of the software has been designed to be applicable to most factories and industries. In some cases this means that most of what has been included in the system is redundant or overly complex; thus making the system difficult to implement and use (Yenradee *et al* 2002).

The aim of this thesis is to show how a simple, low cost system can be developed within a company using tools that are readily available to most businesses.

1.2. Objective

The objective of this thesis is to develop a simple, low cost MRP system for implementation within a SME electronics company.

1.3. Scope

The scope of this thesis is restricted to the following:

- The development of the system is restricted to Production Units 1, 2 and 3 of the TKM Department.
- Materials that are to be included in the system are those that are produced by the company's subsidiary.
- Complete implementation of the system will not be included as part of this thesis, which would include:
    - Training of staff
    - Bringing the system online
    - System stabilisation

1.4. Expected Benefits

The expected benefits of this thesis are:

- To highlight the challenges and benefits of developing such a system
- To show how such a system can be developed within the constraints of a SME

1.5. Methodology

This it the proposed methodology of the thesis:

1 Complete literature survey

2 Analyse the current situation within the TKM Department

3 Collect data for the system (obtain batch size, lead times, safety stock levels, etc)

4 Develop the system

5 Test and debug system

6 Thesis write up

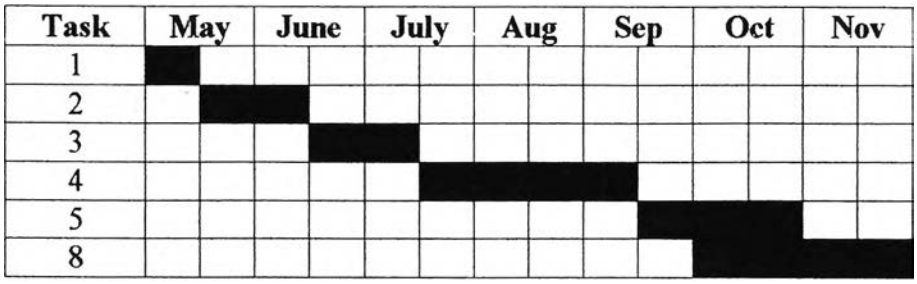

Figure 1.1 Proposed time plan of thesis methodology