

**A business Processes Reference Model  
for Course Document Management for Supporting Accreditation**

A Project Report submitted to the Graduate School in partial fulfillment  
Of the requirements for  
the degree of Master of Science (Information Technology) (MSc.IT)  
Universiti Utara Malaysia

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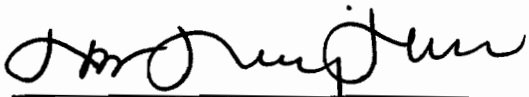
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## **Abstract**

A reference model is a fundamental starting point for the development of new information systems. Reference models are also called universal models, generic models, or model patterns. In order to obtain a higher learning programme accreditation, most of the educational institutions such as private and public universities have to clearly demonstrate that the programmes offered by them meet the quality standards established by the accreditation body. However, there is no complete and effective reference model for the business process of managing courses' document in order to support accreditation. Therefore, this master's thesis is an attempting to design a reference model, which will be as a general reference model for the business processes of managing document of courses in higher educational institutions and universities in order to obtain accreditation. As the processes to obtain the accreditation is almost similar in most universities and higher educational institutions around world, this study tries to design general business processes reference model to these process that can be as a reference for any education institutions to model its own model since the specific model is a partial model of the reference model. Moreover based on this reference model, the requirements model for Universiti Utara Malaysia (UUM) was designed and implemented as web-based system for Courses' document management supporting Accreditation. In addition to this, the purposed reference model covers all processes that are used in most universities and higher educational institutions to store, retrieve and organise the information of the courses. The methodology of this study is the general design research methodology that contained; awareness of problem, suggestion, development, evaluation, and conclusion. To evaluate the system that was designed and implemented based on the reference model, two methods was used. The first one is black box testing to ensure that the functionality specified in the requirement specification works. The other method is the questionnaire to evaluate the usability of the systems in terms of usefulness. The summary of evaluation results emphasises that this system provides an enhancement and improvement to the performance of the users to accomplish their tasks, and enables the users to complete their tasks quickly.

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## Table of Acronyms

<b>Acronym</b>	<b>Full name</b>
HTML	Hyper Text Mark-up Language
UUM	Universiti Utara Malaysia
CDMS	Courses' Documents Management System
PU	Perceived Usefulness
SPSS	Statistical Package for Social Science
CLO	Course Learning Outcome
PLO	Program Learning Outcome
UML	Unified Modeling Language
ABET	Accreditation Board for Engineering and Technology
ECPD	Engineers Council for Professional Development
CSAB	Computing Sciences Accreditation Board
MQF	Malaysia Qualification Framework
MQA	Malaysia Qualification Agency
CAC	Computing Accreditation Commission
ODP	Open Distributed Processing
RM-ODP	Reference Model for Open Distributed Processing

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

A business process is a group of tasks or activities that are performed at some organisations based on some rules to achieve a specific objective. A business process model contains and describes all the elements that are involved in performing the business processes and the rules that controlling their execution (Axenath et al., 2005).

To analyse, design, implement, and deploy the information system, information modeling is considered as an efficiency way to do perform these processes (Wand et al., 2002). However, the modeling of process often lead to failure and is resource consuming, when it be conducted without any guide or previous experience. To avoid these problems and to model process efficiently, the idea of reference modeling is introduced (Mertins et al., 1998; Scheer et al., 2000).

While an application model represents a particular enterprise system, a conceptual model represents a class of similar enterprise systems. It is a conceptual framework that can be used as a blueprint for information system construction (Fettke et al., 2003). To use a particular reference model, it must be adapted to the requirements of a particular enterprise. Reference models are also called universal models, generic models, or model patterns. The term reference model for business processes refers to a specific type of reference model. A process reference model represents dynamic aspects of an enterprise for example, activity sequences, organisational activities require to satisfy customer needs, control-flow between activities, and particular dependency constraints (Becker et al., 2003).

According to Scheer (1990) to develop new information system, the reference model is a fundamental beginning point. Every reference model is a model which can be consulted for the development of other models (Hars 1994). Scheer (1997) abstracted from information models and sees a reference model as a model which can serve as the starting point for the development of solutions based on concrete problems. Thus, Becker et al., (2003) refers to information models used as initial solutions for the development of project-specific models, as reference models.

According to Aalst et al., (2002), reference models can be considered as general models which contain recommended practices for a specific domain. The focus on the reference model is always on all aspects of the same domain. For example, the Dutch NVVB (<http://www.nvvb.nl/>) provides a

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