

**ANALYSING AND ADVISING SYSTEM FOR UNDERGRADUATE CURRICULA  
DESIGN**



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## ABSTRACT

One of the main issues in knowledge representation is how to store and manipulate knowledge in an information system/knowledge based system. Therefore the implementation technique chosen in order to come out with an effective knowledge representation is very important. Each technique to be applied varies depends on the domain. This paper deals with the application of Model-Based Reasoning (MBR) to model and represent the domain knowledge. Model-Based Reasoning is suitable for generic knowledge which needs an abstraction in the modeling process. It targets the knowledge that describes the domain's behaviour. It is well-known that the most important advantage of MBR is lies in knowledge acquisition of the domain which suitable for cases whereby experts typically take a long time and extremely difficult to come out with solid rules. This paper explores the use of robust model based reasoning approaches and meanwhile introduces a recursive methodology for domain modeling to model qualitative knowledge for computer science undergraduate curriculum development. In particular it presents the throughout phases in modeling the knowledge including template design for handling the knowledge that has to be dealt with for this purpose.

# CHAPTER 1

## INTRODUCTION

### 1.0 Introduction

One of the important issues in knowledge modeling and representation is how to store and manipulate knowledge in the knowledge-based system (KBS). In order to manipulate this knowledge, we must specify how the abstract conceptualization is represented as a concrete data structure. Therefore the implementation technique chosen is very important. Each technique to be applied varies depends on the domain. Despite their differences, all of these approaches share the requirement that the content of all problem instances can be generalised and represented formally.

### 1.1 Background of the Problem

According to Durkin (1994), choosing a correct modeling and representation technique for a given application produces a structure that supports effective problem solving. Therefore, after analyzing the knowledge gained in the knowledge acquisition phase, it is best represented using model. One of the best solutions to represent the qualitative knowledge for strategic and tactical decision is by using a model. In modeling process, there are