

**PRE-GENERATION OF STUDENT MODULE IN INTELLIGENT  
TUTORING SYSTEM**

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**UNIVERSITY UTARA MALAYSIA  
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**PRE-GENERATION OF STUDENT MODULE IN INTELLIGENT  
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**A thesis submitted to College Arts & Sciences  
in partial fulfillment of the requirement for the degree  
Master of Science (Intelligent System)  
University Utara Malaysia**

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## ABSTRACT

*An intelligent tutoring system (ITS) is a system that provides direct modified instruction or feedback to students without the interference of human beings. Most of the researches in ITS have been in assessment, reforming of the learning objects and change of the learning object finding path. To make an ITS as efficient as expert human tutors, this research aims at identifying the user understanding level of a user prior to using an ITS by conducting a pre-test. Upon completing the test, user will be presented with a teaching session that is based on his/her performance in the undertaken pre-test. The system is intended for undergraduate students to learn knowledge representation. Two systems were developed for the purpose of evaluation and namely Version A and Version B. Version A adopts the existing approach that assumes all students have the same background knowledge, while Version B conducted the teaching session according to students existing knowledge. A pilot test was performed on the BIT undergraduate students. The results showed that by using Version B, students obtained a better result compared to using Version A.*

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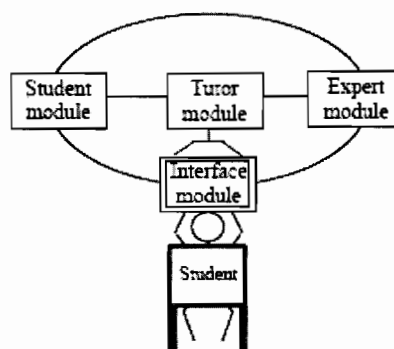
## **LIST OF ABBREVIATIONS**

<b>UUM</b>	<b>Universiti Utara Malaysia</b>
<b>ITS</b>	<b>Intelligent Tutoring System</b>
<b>AI</b>	<b>Artificial Intelligence</b>
<b>WBT</b>	<b>Web-Based Training</b>
<b>ITG</b>	<b>Intelligent Tutor Generator</b>
<b>EGIP</b>	<b>Explanation Generation for Integration Problem</b>
<b>NL</b>	<b>Natural Language</b>
<b>IITS</b>	<b>Integrated Intelligent Tutoring System</b>
<b>BN</b>	<b>Bayesian Networks</b>
<b>CBR</b>	<b>Case-Based Reasoning</b>
<b>KSE</b>	<b>Knowledge Scoring Engine</b>
<b>SM</b>	<b>Student Module</b>
<b>IQ</b>	<b>Intelligence Quota</b>

## CHAPTER ONE

### INTRODUCTION

An intelligent tutoring system (ITS) is any computer system that provides direct customized instruction or feedback to students, i.e. without the intervention of human beings, while performing a learning task. However, ITS systems are more narrowly considered as artificial intelligence systems, more specifically expert systems made to simulate aspects of a human tutor. A system as shown in Figure 1.1 consists of four subsystems or modules, namely; the interface module, the expert module, the student module, and the tutor module.



**Figure 1.1:** The general architecture of ITS.  
(Htaik & Amnuaisuk, 2003)

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the thesis is for  
internal user  
only

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