

UNIVERSITI TEKNOLOGI MARA

**C++ PROGRAMMING COURSEWARE USING
PROBLEM-BASED LEARNING (PBL) APPROACH**

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ABSTRACT

First year students on Information Technology courses at tertiary level find C++ Programming difficult: learning outcomes are poor with high failure rates and low learner retention. A number of research studies have shown that novice programmers have low motivation and low programming self-efficacy. The literature suggests that Problem-based Learning (PBL) can improve the teaching of difficult concepts and it has been promoted by professional as a teaching strategy that can improve learning outcomes and bring about positive changes in learning behavior. The main aim of this research study is how to improve teaching and learning programming after implementing learning courseware that use Problem-based Learning (PBL) approach. The objective of this study is to design a learning application to teach programming using PBL approach, develop learning courseware that can help students to learn programming and to identify the students' learning preference between the ordinary classroom learning and the PBL. The prototype has been tested with six IT students who have experienced learning programming. Analysis of the results showed that PBL courseware has succeeded in assisting students in learning C++ Programming. Thus, the PBL approached can be implemented in teaching and learning of programming.

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TABLE OF CONTENTS

	Page
STUDENT'S DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER ONE: INTRODUCTION	
1.1 Introduction	1
1.2 Research Background	1
1.3 Problem Statement	2
1.4 Research Aim	3
1.5 Research Questions	4
1.6 Research Objectives	4
1.7 Research Scope	4
1.8 Significances of Research	4
1.9 Structure of the Project Report	5
CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	6
2.2 Computer Programming	6
2.3 Teaching and Learning Programming	8
2.4 Theories of Learning	10
2.4.1 Cognitive Theory	10
2.4.2 Constructivism Theory	11
2.5 Problem-based Learning (PBL)	13

2.5.1 PBL in Malaysia	15
2.5.2 The Effectiveness of PBL	17
2.5.3 PBL from the Teacher's Perspective	18
2.6 Multimedia Courseware Design	20
2.7 Summary	22

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction	23
3.2 Research Methodology	24
3.3 Research Design	26
3.3.1 Analysis	27
3.3.2 Design	28
3.3.3 Development	28
3.3.4 Implementation	29
3.3.5 Evaluation	29
3.4 Project Requirement	30
3.4.1 Software Requirements	30
3.4.2 Hardware Requirements	30
3.5 Project Timeline	31
3.6 Summary	31

CHAPTER FOUR: DESIGN AND DEVELOPMENT

4.1 Introduction	32
4.2 Courseware Design	32
4.2.1 Flowchart	34
4.2.2 Detailed Course Content	35
4.2.3 Storyboarding	36
4.3 The C++ Programming Courseware	43
4.3.1 Homepage Screen	43
4.3.2 Main Menu Screen	44
4.3.3 Problem Scenario Screen	45
4.3.4 Problem Solving Sheet Screen	46