FTMK INTERNSHIP PLACEMENT SYSTEM

AMEERUL ZAKI BIN AZLAN RAOUS

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS LAPORAN

JUDUL: FTMK INTERNSHIP PLACEMENT SYSTEM

SESI PENGAJIAN: 2020 / 2021

Saya: AMEERUL ZAKI BIN AZLAN RAOUS

mengaku membenarkan tesis Projek Sarjana Muda ini disimpan di Perpustakaan Universiti Teknikal Malaysia Melaka dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. * Sila tandakan (✓)

_____ SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)
_____ TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi / badan di mana penyelidikan dijalankan)
____✓____ TIDAK TERHAD	

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

(TANDATANGAN PELAJAR)

(TANDATANGAN PENYELIA)

Alamat tetap: 3911 KELAS E, JALAN TEBUAN, LAPANGAN TERBANG ANTARABANGSA SENAI, 81250 SENAI, JOHOR

Zarita binti Mohd Kosnin

Nama Penyelia

Tarikh: 10 September 2021

Tarikh: 10/09/2021

CATATAN: * Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

FTMK INTERNSHIP PLACEMENT SYSTEM

AMEERUL ZAKI BIN AZLAN RAOUS

UTeM

This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Software Development)] with Honours.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I hereby declare that this project report entitled

FTMK INTERNSHIP PLACEMENT SYSTEM

is written by me and is my own effort and that no part has been plagiarized

without citations.

STUDENT: _____ Date: 10 September 2021

(AMEERUL ZAKI BIN AZLAN RAOUS)

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of

Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR: _____ Date: 10/09/2021

(MRS. ZARITA MOHD KOSNIN)

DEDICATION

This study is wholeheartedly dedicated to our beloved parents, who have been our source of inspiration and gave us strength when we thought of giving up, who continually provide their moral, spiritual, emotional, and financial support. To our brothers, relatives, mentor, friends, and classmates who shared their words of advice and encouragement to finish this project. And lastly, we dedicated this project to the Almighty God, thank you for the guidance, strength, power of mind, protection, skills, and for giving us a healthy life. All of these, we offer to you.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ACKNOWLEDGEMENTS

Alhamdulillah, praises and thanks to Allah because of His Almighty and His utmost blessings, I was able to finish this project within the time duration given.

I would like to thank Mrs. Zarita Mohd Kosnin for giving assistant to complete this project successfully. I sincerely appreciated the extraordinary effort that she gave to me. Thank you for the guidance and help throughout the project development. Without her help, I would have difficulties in completing my project.

I would also like to thank my beloved parents and brothers who have been giving me moral support from a far, prayers and motivation throughout my project. Thank you all for your loves.

Lastly to my beloved friends who are encouraged, guided, and inspired me. Without their patience, understanding, support and most of love, the completion of this work would not have been possible.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRACT

FTMK Internship Placement System (FIPS) is a system to help manage students for industrial training. The industrial training period is essential for UTeM student and staff, thus the FIPS will be able to help facilitate UTeM staff during the students industrial training period. The problem statement for this project is the student face difficulty to find the organization for industrial training that aligns with their study programme. The faculty coordinator and supervisor also have difficulty to monitor and track all the student internship application status and industrial training progress. The internship students having trouble for determining the organizational criteria required to undergo industrial training. To overcome these problems, the FIPS will be developed. The objective for this project is to develop web-based system as a platform for students to search and apply industrial training by referring to the requirements given by the organization and to allow internship committee to monitor and track student's internship application status and industrial training progress. Next is to design a solution that facilitate students, internship committee and organizations related to industrial training. Finally, to test the system for efficiency and user satisfaction in terms of usability by the students, internship committee and organizations. The FIPS consist of 5 users which are the system administrator, coordinator, supervisor, student, and organization. This project is using System Development Life Cycle (SDLC). The phases of the methodology are Requirements and Analysis, System and Software Design, Development and Implementation, and System Testing. FIPS will be developed using Yii2 Framework (PHP Framework), and MySQL for the Relational Database Management System (RDBMS). The testing is done using unit testing and user acceptance testing from organization and student.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRAK

FTMK Internship Placement System (FIPS) adalah sistem untuk membantu menguruskan pelajar untuk latihan industri. Tempoh latihan industri sangat penting bagi pelajar dan staf UTeM, oleh itu FIPS akan dapat membantu memudahkan kakitangan UTeM semasa tempoh latihan industri pelajar. Penyataan masalah untuk projek ini adalah pelajar menghadapi kesukaran untuk mencari organisasi latihan industri yang sesuai dengan program pengajian mereka. Penyelaras dan penyelia fakulti juga menghadapi kesukaran untuk memantau dan mengesan semua status permohonan magang pelajar dan kemajuan latihan industri. Pelajar magang menghadapi masalah untuk menentukan kriteria organisasi yang diperlukan untuk menjalani latihan industri. Untuk mengatasi masalah ini, FIPS akan dibangunkan. Objektif untuk projek ini adalah untuk mengembangkan sistem berasaskan web sebagai platform bagi pelajar untuk mencari dan menerapkan latihan industri dengan merujuk kepada keperluan yang diberikan oleh organisasi dan untuk membolehkan jawatankuasa magang memantau dan mengesan status permohonan magang pelajar dan kemajuan latihan industri. Seterusnya adalah merancang penyelesaian yang memudahkan pelajar, jawatankuasa magang dan organisasi yang berkaitan dengan latihan industri. Akhirnya, untuk menguji sistem untuk kecekapan dan kepuasan pengguna dari segi kebolehgunaan oleh pelajar, jawatankuasa magang dan organisasi. FIPS terdiri daripada 5 pengguna iaitu pentadbir sistem, penyelaras, penyelia, pelajar, dan organisasi. Projek ini menggunakan System Development Life Cycle (SDLC). Fasa-fasa metodologi tersebut adalah Keperluan dan Analisis, Reka Bentuk dan Pembangunan Sistem dan Perisian, dan Pengujian Sistem. FIPS akan dibangunkan menggunakan Yii2 Framework (PHP Framework), dan MySQL untuk Relational Database Management System (RDBMS). Pengujian dilakukan menggunakan ujian unit dan ujian penerimaan pengguna dari organisasi dan pelajar.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

TABLE OF CONTENTS

	PAGE
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
ABSTRAK	vi
LIST OF TABLES	xi
LIST OF FIGURES	xiv
LIST OF ABBREVIATIONS	xvi
LIST OF ATTACHMENTS	xviii
CHAPTER 1: INTRODUCTION	1
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Objective	3
1.4 Scope	4
1.5 Project Significance	5
1.6 Expected Output	6
1.7 Conclusion	6
CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY	7
2.1 Introduction	7
2.2 Web Based	7
2.2.1 Infrastructure	9

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2.2.2 Database 10

2.2.3 Programming Language 12

2.3 Facts and Findings with Related Work 13

2.3.1 Domain 13

2.3.2 Existing System 14

2.3.3 Comparison between Existing System with this Project 15

2.3.4 Technique 16

2.4 Project Methodology 17

2.5 Project Requirements 18

2.5.1 Software Requirement 19

2.5.2 Hardware Requirement 20

2.5.3 Other Requirements 20

2.6 Project Schedule and Milestones 21

2.7 Conclusion 21

CHAPTER 3: ANALYSIS 22

3.1 Introduction 22

3.2 Problem Analysis 22

3.2.1 Business Process 23

3.2.2 Problem Decomposition Description 24

3.3 Requirement Analysis 24

3.3.1 Data Requirement 25

3.3.2 Functional Requirement 27

3.3.3 Non-functional Requirement 33

3.4 Conclusion 34

CHAPTER 4: DESIGN 35

4.1 Introduction 35

4.2 High-Level Design 36

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.2.1 System Architecture 37
4.2.2 User Interface Design 38
4.2.3 Database Design 54
4.3 Detailed Design 70
4.3.1 Software Design 70
4.3.2 Physical Database Design 86
4.4 Conclusion 86
CHAPTER 5: IMPLEMENTATION 87
5.1 Introduction 87
5.2 Software Development Environment Setup 87
5.3 Software Configuration Management 89
5.3.1 Configuration Environment Setup 90
5.3.2 Version Control Procedure 91
5.4 Implementation Status 93
5.5 Conclusion 95
CHAPTER 6: TESTING 96
6.1 Introduction 96
6.2 Test Plan 97
6.2.1 Test Organization 97
6.2.2 Test Environment 97
6.2.3 Test Schedule 98
6.3 Test Strategy 100
6.3.1 Classes of Tests 100
6.4 Test Design 101
6.4.1 Test Description 101
6.4.2 Test Data 107
6.5 Test Results and Analysis 112

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

6.6 Conclusion 114

CHAPTER 7: CONCLUSION 115

7.1 Observation on Weaknesses and Strengths 115

7.2 Propositions for Improvement 116

7.3 Project Contribution 116

7.4 Conclusion 117

REFERENCES 118

APPENDICES 120

APPENDIX A: GANTT CHART 121

APPENDIX B: NAVIGATION FLOW 122

APPENDIX C: DATA DEFINITION LANGUAGE 123

APPENDIX E: USER ACCEPTANCE TESTING - ORGANIZATION 145

APPENDIX F: USER ACCEPTANCE TESTING – STUDENT 1 151

APPENDIX G: USER ACCEPTANCE TESTING – STUDENT 2 158

APPENDIX H: USER ACCEPTANCE TESTING – STUDENT 3 165

اونيۏرسيتي تيکنيکل مليسيا ملاك
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

PAGE

Table 2.1: Comparison of Existing System 15

Table 2.2: Software Requirement 19

Table 2.3: Hardware Requirement 20

Table 2.4: Other Requirement 20

Table 3.1: Data Requirement for Personal Detail 25

Table 3.2: Data Requirement for Organization Detail 26

Table 3.3: Data Requirement for Internship Application 26

Table 3.4: Functional Requirement for User Authentication Module 28

Table 3.5: Functional Requirement for Management Module 28

Table 3.6: Functional Requirement for Announcement Module 30

Table 3.7: Functional Requirement for Resume Module 30

Table 3.8: Functional Requirement for Internship Application Module 31

Table 3.9: Functional Requirement for Organization Profile Module 31

Table 3.10: Functional Requirement for Internship Recruitment Module 32

Table 3.11: Functional Requirement for Supervision Module 32

Table 3.12: Functional Requirement for Report Module 33

Table 3.13: Non-functional Requirement 33

Table 4.1: Data Dictionary for Academic Session 58

Table 4.2: Data Dictionary for Achievement 59

Table 4.3: Data Dictionary for Announcement 59

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Table 4.4: Data Dictionary for Announcement Role 60

Table 4.5: Data Dictionary for Attachment 60

Table 4.6: Data Dictionary for Education 61

Table 4.7: Data Dictionary for Experience 61

Table 4.8: Data Dictionary for Internship Application 62

Table 4.9: Data Dictionary for Language 62

Table 4.10: Data Dictionary for Lookup Department 63

Table 4.11: Data Dictionary for Lookup Faculty 64

Table 4.12: Data Dictionary for Lookup Language 64

Table 4.13: Data Dictionary for Lookup Programme 65

Table 4.14: Data Dictionary for Lookup State 65

Table 4.15: Data Dictionary for Migration 66

Table 4.16: Data Dictionary for Organization Detail 66

Table 4.17: Data Dictionary for Personal Detail 67

Table 4.18: Data Dictionary for Skill 68

Table 4.19: Data Dictionary for Supervision 68

Table 4.20: Data Dictionary for User 69

Table 4.21: Class Description for Login Form 70

Table 4.22: Class Description for User 71

Table 4.23: Class Description for Lookup Department 72

Table 4.24: Class Description for Lookup Programme 73

Table 4.25: Class Description for Lookup State 74

Table 4.26: Class Description for Lookup Language 75

Table 4.27: Class Description for Academic Session 76

Table 4.28: Class Description for Announcement 77

Table 4.29: Class Description for Supervision 78

Table 4.30: Class Description for Personal Detail 79

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Table 4.31: Class Description for Skill 80

Table 4.32: Class Description for Language 81

Table 4.33: Class Description for Education 82

Table 4.34: Class Description for Experience 83

Table 4.35: Class Description for Achievement 84

Table 4.36: Class Description for Organization Detail 85

Table 5.1: Implementation Status 93

Table 6.1: User and Task for the Testing Phase 97

Table 6.2: Test Schedule for FIPS 99

Table 6.3: Test Description for User Authentication Module 101

Table 6.4: Test Description for Management Module 102

Table 6.5: Test Description for Announcement Module 104

Table 6.6: Test Description for Resume Module 104

Table 6.7: Test Description for Internship Application Module 105

Table 6.8: Test Description for Organization Profile Module 105

Table 6.9: Test Description for Internship Recruitment Module 106

Table 6.10: Test Description for Supervision Module 106

Table 6.11: Test Description for Report Module 107

Table 6.11: Test Data for User Authentication Module 107

Table 6.12: Test Data for Management Module 108

Table 6.13: Test Data for Announcement Module 109

Table 6.13: Test Data for Resume Module 110

Table 6.14: Test Data for Organization Profile Module 111

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF FIGURES

PAGE

Figure 2.1: Web Architecture 8

Figure 2.2: Web Client and Web Server 9

Figure 2.3: Three-tier Architecture 10

Figure 2.4: Waterfall Model for the SDLC 17

Figure 3.1: UTM ITS Business Process 23

Figure 3.2: Use Case Diagram 27

Figure 4.1: High-Level System Context View 36

Figure 4.2: Web Application Structure (Mark Dabbs 2019) 37

Figure 4.3: Input Design for Staff Login 39

Figure 4.4: Input Design for User Login 39

Figure 4.5: Input Design for User Registration (Admin) 40

Figure 4.6: Input Design for Create Department (Admin) 41

Figure 4.7: Input Design for Create Programme (Admin) 42

Figure 4.8: Input Design for Create State (Admin) 42

Figure 4.9: Input Design for Create Language (Admin) 43

Figure 4.10: Input Design for Create Academic Session (Admin) 43

Figure 4.11: Input Design for Create Announcement (Admin) 44

Figure 4.11: Input Design for Create Supervisor (Coordinator) 45

Figure 4.12: Input Design for Assign Supervision (Coordinator) 45

Figure 4.13: Input Design for Student Resume (Student) 46

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Figure 4.14: Input Design for Organization Profile (Organization) 48

Figure 4.15: Output Design for Admin Dashboard 49

Figure 4.16: Output Design for Coordinator Dashboard 50

Figure 4.17: Output Design for Supervisor Dashboard 51

Figure 4.18: Output Design for Student Dashboard 52

Figure 4.19: Output Design for Organization Dashboard 53

Figure 4.20: Entity Relationship Diagram 55

Figure 5.1: Deployment Diagram 88

Figure 5.2: GitLab 90

Figure 5.3: Environment Setup Command 91

Figure 5.4: Git Bash 92

UTeM
اونيۏرسيتي تيکنيکل مليسيا ملاک
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF ABBREVIATIONS

FTMK	-	**Fakulti Teknologi Maklumat dan Komunikasi**
FIPS	-	**FTMK Internship Placement System**
UTeM	-	**Universiti Teknikal Malaysia Melaka**
HTTP	-	**Hypertext Transfer Protocol**
HTML	-	**Hypertext Markup Language**
DBMS	-	**Database Management System**
RDBMS	-	**Relation Database Management System**
PHP	-	**PHP: Hypertext Preprocessor**
JS	-	**JavaScript**
AJAX	-	**Asynchronous JavaScript and XML**
XML	-	**Extensible Markup Language**
DOM	-	**Document Object Model**
MiCoST	-	**Melaka International College of Science and Technology**
IS	-	**Information System**
UTM	-	**Universiti Teknologi Malaysia**
ITS	-	**Industrial Training System**
UiTM	-	**Universiti Teknologi MARA**

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

STIS	**-**	**Student Internship Training Information System**
MARA	**-**	**Majlis Amanah Rakyat**
STIS	**-**	**Student Internship Training Information System**
SDLC	**-**	**System Development Life Cycle**
ERD	**-**	**Entity Relationship Diagram**
DDL	**-**	**Data Definition Language**
AMTIS	**-**	**Advance Management Technology in Intelligence System**
UAT	**-**	**User Acceptance Testing**

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF ATTACHMENTS

PAGE

Appendix A: Gantt Chart for the Project Development	121
Appendix B: Navigation Flow	122
Appendix C: Data Definition Language	123
Appendix E: User Acceptance Testing - Organization	145
Appendix F: User Acceptance Testing – Student 1	151
Appendix G: User Acceptance Testing – Student 2	158
Appendix H: User Acceptance Testing – Student 3	165

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CHAPTER 1: INTRODUCTION

This chapter introduces the overview of project background and rationale on the project entitled FTMK Internship Placement System. In this chapter, the project background and the problem statement are discussed further on the next section which are introduction, problem statement, objective, scope, project significance, expected output, and conclusion.

1.1 Introduction

An internship or industrial training is a period of work experience offered by an organization for a limited period. The internship program provides student an opportunity to expose themselves to the real work environment and link theory with practice and further gaining relevant skills and experience in particular field. Internship program is an essential process in all universities. Before the student graduate, they need to undergo the internship program. However, management of internship placement can be differing for each university.

FTMK Internship Placement System (FIPS) is a system to help manage students for industrial training. The industrial training period is essential for UTeM student and staff, thus the FIPS will be able to help facilitate UTeM staff during the students industrial training period.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

By using this system, the student can get an internship placement in a short time. The registered companies will provide an internship plans for the students to choose from. This system facilitates the process of students eligible for industrial training to find a place to undergo such industrial training. This system can be used as a platform for industrial training supervisor to keep track and monitor the student internship application status.

1.2 Problem Statement

While the study on FTMK Internship Placement System implementation, only slightly specific attention considered to measure the successful or failure. The list of problem that have been discovered are:

- Student face difficulty to find the organization for industrial training that aligns with their study programme.
- Faculty coordinator and supervisor have difficulty to monitor and track all the student internship application status and industrial training progress.
- Internship students having trouble for determining the organizational criteria required to undergo industrial training.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.3 Objective

This section explains the objective of developing the project that should be achievable at the end of this project:

- To develop web-based system as a platform for students to search and apply industrial training by referring to the requirements given by the organization and to allow internship committee to monitor and track student's internship application status and industrial training progress.
- To design a solution that facilitate students, internship committee and organizations related to industrial training.
- To test the system for efficiency and user satisfaction in terms of usability by the students, internship committee and organizations.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.4 Scope

The FTMK Internship Placement System is focus for use in Universiti Teknikal Malaysia Melaka (UTeM).

Modules:

i. User Authentication Module

- Authenticate user, and authorize user based on access control.

ii. Management Module

- Manage user, department, programme, state, language, and session.

iii. Announcement Module

- Post announcement.

iv. Resume Module

- Generate resume from the system.

v. Internship Application Module

- Manage internship application, apply internship, compare organization, generate offer letter, and feedback form.

vi. Organization Profile Module

- Generate organization profile from the system.

vii. Internship Recruitment Module

- Advertise organization's requirements and review student for industrial training.

viii. Supervision Module

- Manage and assign supervisor with student.
- View assigned students.

ix. Report Module

- Provide dynamic statistic report.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA