

23/50N/09/2017

LIBRARY  
UNIVERSITY OF MORATUWA, SRI LANKA  
MORATUWA

# Management of Teachers' Information System

## Maharagama

Neranga I Kalasinghe


129154N

Dissertation submitted to the Faculty of Information Technology, University of Moratuwa, Sri Lanka for the partial fulfillment of the requirements of the Degree of Master of Science in Information Technology.

2016

004"16"  
004(043)

University of Moratuwa



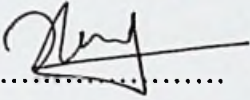
TH3293

TH 3293  
+ DVD-ROM

TH 3293

## Declaration

I hereby declare that the thesis submitted by me is based on original works carried out by me. Any reference to work done by any other person or institution or any material obtained from other sources have been duly cited and referenced. I further certify that the dissertation has not been submitted in any form for any other degree or diploma at any university or other institution of tertiary education.




N. I. Kalasinghe

Date: 2016.12.15

I certify that the above particulars given are true and correct to the best of my knowledge.

***UOM Verified Signature***



Dr. H.T. Chaminda

Supervisor

Date:

## Acknowledgements

First, I would like to thank Dr. H.T. Chaminda, Senior Lecturer, Faculty of Information Technology, University of Moratuwa as supervisor for the support, advices, comments given by him to succeed my research. And also like to thank all the lecturers and the staff of the Faculty of Information Technology, University of Moratuwa for their assistance throughout the course.

Secondly, I wish to thank academic staff, non academic staff and students of the National College of Education Maharagama for participating my informal interviews, giving their ideas and feedback, helping to build the system.

Then, I extend my heartiest gratitude to my husband and my little daughters for their unconditional love and encouragement.

Finally I would like to thank everyone who helping to finish my project report.

## Abstract

National College Of Education On Entrepreneurship & Management - Maharagama is a one of a National College Of Education(NCOE) in Sri Lanka, which belongs to ministry of education. NCOE conduct special professional training programs for student teachers and in-service training to the teachers.

At present, Call for applications to this professional training program are gazette by government and recruiting students for NCOE by the Ministry of Education. Student those who are completed this special professional teaching training program are able to get “National Diploma in Teaching certificate”.

After entering students to the NCOE, NCOE responsible for handling all activities until they pass out.

Collecting student information, course unit registration, recording student attendance, issuing examination admission, conducting internal exam, selecting students for final exam, publishing student results, maintaining course unit information, assigning lectures for courses, calculating student eligibility for final exam and maintaining pass out student information are done by the NCOE.

Above activities were done manually and using computer application package. Numbers of hard copies of files are stored in folders. Some time same set of papers are repeated again and again because there was not flexible relationship with folders. Though MS Excel and MS word are used, file managing was difficult. Also administrative staffs are unable to find specific student information within short time period. Some time there is no guarantee about accuracy of that information as all searching activities were done by manual.

An Information System should be introduced to overcome above problems. The system is accessed by different level users such as students, lectures, President, Vice President (admin), Vice President (academic), Vice President (continuous), office staff in different location of the College. The new information system achieved to meet online student and course unit registration, assigning lectures for courses, giving web portal to check student eligibility for examinations, storing student result,

calculating grades, maintaining pass out student information. Also students and other staff members in the college are collaborated with the information system.

Students can access their web portal and do their academic relative activities online without delay. Further the system guarantees to provide accurate information for students.

The information system had been designed by using Object oriented design approach. It had been developed by using PHP, HTML, JavaScript, AJAX, cascading style sheet and MySQL database server technologies.

The system achieved user expectations. Student activities are managed by the system. The system gave management information to administrative staff also. Finally the system removed manual process errors and functioned smoothly.

# Table of Contents

	Page
<b>Chapter 1 Introduction .....</b>	<b>01</b>
1.1 Scope .....	02
1.2 Problem specification .....	02
1.3 Aim of the MOTIS .....	03
1.4 Objectives.....	03
1.5 System requirements .....	03
1.6 About next chapters.....	04
<b>Chapter 2 Background .....</b>	<b>06</b>
2.1 Introduction.....	06
2.2 Requirements.....	06
2.2.1 Functional requirements .....	06
2.2.2 Non functional requirements .....	07
2.3 Literature review.....	08
<b>Chapter 3 Analyzing and Designing .....</b>	<b>11</b>
3.1 Introduction.....	11
3.2 Requirement gathering.....	11
3.3 How manual system is functioning .....	12
3.4 Problems with the manual system.....	12
3.5 Answers .....	13
3.6 System Users .....	13
3.7 Design of the system.....	14
3.7.1 System development methodology .....	14
3.7.2 Design Approach.....	14
3.7.3 Architecture design .....	15
3.7.4 Component design.....	16

3.7.5 Database design .....	21
<b>Chapter 4 User Interfaces.....</b>	<b>23</b>
4.1. Introduction.....	23
4.2. Quality of User Interfaces.....	23
4.3 Interfaces of MOTIS.....	24
<b>Chapter 5 Implementation of the MOTIS .....</b>	<b>29</b>
5.1 Functions to be build .....	29
5.2 User Access Matrix.....	29
5.3 Module Structure .....	30
5.4 Development technologies and Tools .....	32
5.4.1 Java Script .....	32
5.4.2 Ajax .....	33
5.4.3 LAMP and WAMP Server .....	33
5.4.4 Dream Viewer Tool.....	33
5.4.5 Implemented Environment.....	33
5.5 Major Code Samples .....	34
5.5.1 Database Connectivity.....	34
5.5.2 Check User Login.....	34
5.5.3 Student information entering module.....	36
5.5.4 New Course Unit creating module.....	45
5.5.5 Course Unit Registration Module .....	51
5.5.6 Lectures Assigning Module .....	52
5.5.7 Attendance Sheet Module .....	56
5.5.8 Eligible Subjects Report generating Module .....	58
5.5.9 Examination Admission Module.....	60
<b>Chapter 6 Testing MOTIS .....</b>	<b>64</b>
6.1 Introduction.....	64
6.2 Testing Process .....	64
6.2.1 Content Testing .....	64
6.2.2 Interface Testing.....	64

6.2.3 Navigation Testing .....	64
6.2.4 Component Testing .....	65
6.2.5 Configuration Testing .....	65
6.2.6 Usability Testing .....	65
6.2.7 Performance Testing .....	66
6.2.8 Security Testing.....	66
6.3 <i>Test Cases</i> .....	66
6.4 <i>User Evaluation</i> .....	66
<b>Chapter 7 Discussion .....</b>	<b>69</b>
7.1 <i>Content Testing</i> .....	69
7.2 <i>Interface Testing</i> .....	69
7.3 <i>Navigation Testing</i> .....	69
7.4 <i>Component Testing</i> .....	69
7.5 <i>Configuration Testing</i> .....	69
7.6 <i>Usability Testing</i> .....	70
7.7 <i>Performance Testing</i> .....	70
7.8 <i>Security Testing</i> .....	70
7.9 <i>Test Cases</i> .....	70
<b>Chapter 8 Evaluation .....</b>	<b>72</b>
8.1 <i>Introduction</i> .....	72
8.2 <i>Achieved Objectives</i> .....	72
8.2.1 <i>Maintain Student Information</i> .....	72
8.2.2 <i>Maintain Course Unit Information</i> .....	72
8.2.3 <i>Online Attendance Sheet</i> .....	72
8.2.4 <i>Online Exam Admission</i> .....	73
8.2.5 <i>Student Result</i> .....	73
8.2.6 <i>Pass out Student Information</i> .....	73
8.2.7 <i>Security</i> .....	73
8.3 <i>Difficulties in the MOTIS</i> .....	73



<b>Chapter 9 Conclusions .....</b>	<b>75</b>
9.1 <i>Introduction</i> .....	75
9.2 <i>Objectives of the MOTIS</i> .....	75
9.3 <i>Activities of the MOTIS</i> .....	75
9.4 <i>Future Developments</i> .....	76
9.4.1 Added Survives for Lectures .....	76
9.4.2 Login to MOTIS any where.....	76
9.4.3 Configuring E Mail System.....	76
9.4.4 Connecting with Other Systems .....	76
<b>Reference.....</b>	<b>80</b>
<b>Appendix A – Design Documentation .....</b>	<b>78</b>
<b>Appendix B – User Manual .....</b>	<b>83</b>
<b>Appendix C – Code Listings.....</b>	<b>89</b>
<b>Appendix D – User Evaluation .....</b>	<b>105</b>

# List of Figures

	<b>Page</b>
Figure 3.1 - System Architecture	16
Figure 3.2 - Database schema diagram	22
Figure 4.1 - Login Form	24
Figure 4.2 - Student Information Form	25
Figure 4.3 - New Course unit Form	25
Figure 4.4 - Course Unit Registration Form	26
Figure 4.5 - Lecture Assigning Form	26
Figure 4.6 - Attendance Sheet	27
Figure 4.7 - Eligible Subjects Report	27
Figure 4.8 - Result Sheet	28
Figure 5.1 - Module Structure	31
Figure 6.1 – User Evaluation Summary Part 1	67
Figure 6.2 – User Evaluation Summary Part 2	67
Figure 6.3 – User Evaluation Summary Part 3	68
Figure A.1 - Assign or remove lecture	79
Figure A.2 - Course unit registration	80
Figure A.3 - Enter and edit attendance sheet	80
Figure D.1 – Questioner	105
Figure D.2 – Questioner	106

# List of Tale

	<b>Page</b>
Table 3.1-Use case narrative for student registration	17
Table 3.2- Use case narrative for course unit registration by student	18
Table 3.3 - Use case narrative for attendance sheet creation	19
Table 3.4 -Use case narrative for issuing semester exam admission	20
Table 5.1 - User access matrix	30
Table 5.2 - Base file for modules	32

## List of abbreviations

<b>Abbreviation</b>	<b>Definition</b>
NCOE	National College Of Education
MOTIS	Management of Teachers' Information System
PHP	Personal Home Page
NIC	Network Interface Card
LAN	Local Area Network
IS	Information System
UML	Unified Modeling Language
ER	Entity Relationship
OOAD	Object Oriented Analysis and Designing