

## BORANG PENGESAHAN STATUS TESIS\*

JUDUL: SOFTWARE ENGINEERING COURSEWARE (COST ESTIMATION)

SESI PENGAJIAN: 2008

Saya MOHD RAZIF BIN MUSTAPHA

(HURUF BESAR)

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(TANDATANGAN PENULIS)

Alamat tetap : Lot 172, Kg Berchang,  
27200 Kuala Lipis  
Pahang Darul Makmur

Tarikh : 23/6/2008

  
(TANDATANGAN PENYELIA)

Masilla bt Kamaluddin  
Nama Penyelia

Tarikh : 23/6/2008

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**COURSEWARE FOR SOFTWARE ENGINEERING SUBJECT  
(SOFTWARE COST ESTIMATIONS)**

**MOHD RAZIF BIN MUSTAPHA**

This report is submitted in partial fulfillment of the requirements for the Bachelor of  
Computer Science (Software Development)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**

**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**2008**

**DECLARATION**

I hereby declare that this project report entitled  
**COURSEWARE FOR SOFTWARE ENGINEERING SUBJECT  
(SOFTWARE COST ESTIMATIONS)**

is written by me and is my own effort and that no part has been plagiarized  
without citations.

STUDENT :   
(MOHD RAZIF BIN MUSTAPHA) Date: 23/6/2008

SUPERVISOR:   
(PN/MASILA BT KAMALRUDIN) Date: 23/6/2008

## DEDICATION

To my beloved parents..

*"Here comes success, here comes success  
over my hill, over my hill."  
- Iggy Pop, Success.*

## ACKNOWLEDGEMENTS

First of all, all praises to Allah the Almighty for His bless and guidance for me throughout the Projek Sarjana Muda I (PSM I). For all His knowledge that revealed to me, I am thankful.

I would like to express the deepest appreciation to my supervisor for PSM I, Puan Masilla Binti Kamalruddin, who has always, respond to my question and her willingness to share her knowledge and time to guide me. Without all her advices and opinions the development of the PSM I would not have been possible.

I would like to thanks all my friends who have help and share their knowledge. They always willing to share and sacrifice their time for me, which I am very grateful and many thanks for their concern over my projects.

Last but not least, I would like to thanks my beloved family. They always support me in good times and bad times, and always been my source of inspiration in making this report and PSM I a success. Thank you for supporting me. In addition thanks to Universiti Teknikal Malaysia Melaka (UTeM) and all who has helped me in any way to complete this report and PSM I. I really appreciate it.

## ABSTRACT

The main purpose of developing the courseware is to give better understanding for Software Engineering student. The students will be guide about the topics related with Software Engineering subject especially in Software Cost Estimation, step by step conclusion with interactive element on how to understanding the topics. The courseware also provides a quiz in the end of the session to evaluate students understanding in Software Engineering. This courseware also provides cost estimation tools for helping student to clearly understand. Result from this courseware development is hope to help student as well as lecturer to understand the concept of Software Cost Estimation.

## ABSTRAK

Tujuan utama pembangunan *courseware* ini adalah untuk memberi lebih pemahaman kepada semua pelajar yang mengambil subjek kejuruteraan perisian. Kejuruteraan perisian merupakan subjek yang wajib diambil oleh semua pelajar Fakulti Teknologi Maklumat dan Komunikasi, (FTMK) Para pelajar akan dibantu memahami topic *Software Cost Estimations*. Penyelesaian secara langkah demi langkah berserta dengan elemen multimedia dapat membantu pelajar lebih memahami topic tersebut. *Courseware* ini menyediakan kuiz pada akhir sesi pembelajaran untuk menguji sejauh mana pemahaman pelajar terhadap topik tersebut. *Courseware* ini menyediakan *tools* untuk memudahkan pelajar lebih memahami topic yang sedang dipelajari. Hasil dari pembangunan *courseware* ini diharapkan dapat membantu pelajar serta pensyarah memahami lebih mudah konsep *Software Cost Estimation* ini.

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## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Project Background**

Every student studying in Universiti Teknikal Malaysia Melaka must complete every subject that their taken. Particularly in Faculty of Technology and Communications, there is a subject that student must pass in order to graduate. One of the subjects is Software Engineering.

Software Engineering is a subject student have to learn and understanding about the application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software. The discipline of software engineering encompasses knowledge, tools, and methods for defining software requirements, and performing software design, software construction, software testing, and software maintenance tasks. Software engineering also draws on knowledge from fields such as computer engineering, computer science, management, mathematics, project management, quality management, software ergonomics, and systems engineering.

The main purpose of developing the courseware is to give better understanding for Software Engineering student. The students will be guide about the topics related with Software Engineering subject especially in Software Cost Estimation, step by step conclusion with interactive element on how to understanding

the topics. The courseware also provides a quiz in the end of the session to evaluate students understanding in Software Engineering.

The courseware will be develop specially used for UTEM Faculty of Information Technology and Communication (FTMK) students. The FTMK offers subject in SE since the first batch of FTMK student in UTeM. The subject components are: lectures, discussions, projects and study material. There is a 2 hour lecture session every week and 2 additional hour is allocated for lab session discussion on the course material. Students gain a lot of experience by working collaboratively in small groups on reasonably projects. This courseware will help student to understanding the particular sub-topic in Software Engineering. The module in this courseware will guide student with step-by-step explanation, including visual aid and diagrams for better understanding. The courseware also can be use for another university or faculty who applying Software Engineering in their studies.

Currently there are already web-based teaching aids in software engineering. The difference between current system and the courseware that will be develop is it will be develop base on desktop applications. It will not involve web server. The advantage develop stand alone desktop application is it will not affected by malicious virus or another threat that will occur in the internet. There will be a risk where the file maybe lost or damage. In additional for future development, since this courseware will be developing using VB.NET 2005, it will probably will be online for future enhancement.

## 1.2 Problem Statement

This desktop application *Software Engineering Courseware Cost Estimation* is a totally new approach in learning Software Cost Estimation. The development of this courseware is taken ahead after analyzing few problems as stated below.

- i. Hardly to understand the concept of Software Engineering.
  - a) Many student had difficulty to understand the concept of cost estimation in Software Engineering
- ii. It is difficult for students to communicate with the lecturers (e.g. ask questions and receive feedback) outside the classroom or the lecturers appointed office hours in case of lecturer have another important matter to solve or attend.
- iii. Software Cost Estimation is among the hardest topic to understand in Software Engineering.
  - a) Cost Estimation need student to understand every calculations and diagrams in the topic in order to master the topic for the future project
- iv. There are no others interactive and focus reference about certain topic in Software Engineering other than books.
  - a) By exploiting the current user-friendly and desktop application approach, the new proposed courseware can be made as a more focus reference to the field of Software Engineering course. By creating a desktop application which would serve as a interface to access the more systematic, interactive and focus way of learning Software Engineering especially in important topic like Software Cost Estimation.

### 1.3 Objectives

- i. To develop the systematic focus courseware to student of the faculty and also to the lecturer who involved in Software Engineering.
  - a) This application will assist user to follow step by step learning solutions into a simple, user friendly forms before turning it into useful information.
- ii. To give better understanding for students with additional visual, interactive learning solutions and estimation tools in this courseware.
  - a) In order to replace the current manual method, desktop application approach is the most suitable since the student have opportunity to learn by their self at home.
- iii. To help lecturers in their teaching process. (Courseware as a teaching aid)
  - a) This application will be as teaching aid as a lectures performing lecture in class or lab sessions.



## 1.4 Scope

*Software Engineering Courseware* is a desktop application that intends to be used in the field of Software Engineering Course. The scope and topic applied in this application will be based on the Software Engineering Subject that offers in Universiti Teknikal Malaysia Melaka. The scope and subject material used to be applied in this application originated from Faculty Of Technology and Communications (FTMK) students where a research using questionnaire has been conducted.

This application will only deal with the student and lectures who involve in Software Engineering Courses and this application does not directly deal with all topics covering in Software Engineering Course. It only involved scope and subject that most student and lecture think it hard to understand especially in cost estimations. Since this project is the first attempt in developing Software Engineering Courseware in desktop application, it may cause unexpected feedback from the users and will be improve from time to time.

### **1.4.1 User Scope**

- i.* Students (that studies Software Engineering and need some kind of new way to studies Software Engineering Software Cost Estimation).
- ii.* Lecturers (that teaching Software Engineering and need some kind of teaching aids for learning process).

### **1.4.2 Platform Scope**

- i.* Software Engineering Courseware is going to be developing on Windows platform by using VB.Net 2005 language and Microsoft Access database.
- ii.* It may implement some sort of interactive element using Macromedia Flash and Adobe Illustrator while developing this courseware.
- iii.* Software Engineering Tool is a desktop application tool so it will run using Windows platform operating system. Users need make installation in order to run this application.

### **1.4.3 Functionality Scope**

- i.* Tutorial Module
  - a)* Module for step-by-step on how Software Cost Estimation in Software Engineering
- ii.* Evaluation Module
  - a)* Module for evaluation quiz for determine student understanding about the tutorial given

- iii. Interactive Module
  - a) Module about interactive solutions for the Software Cost Estimations. Also have estimation tool to help users to understand how to estimate using COCOMO 81. All content in this courseware include Flash Video, Animation element.
  
- iv. Questions Bank Module
  - a) Module for store questions related to the Cost Estimation Topic and for the uses of evaluation quiz.
  
  - b) All Software Engineering Subject questions related with the Cost Estimation Topic will restored in this questions bank.

## 1.5 Project Significance

*Software Engineering Courseware* will replace the current method of studies and learning software engineering course. It surely beneficial to the students where it can simplify the process of understanding the concept of Software Engineering.

It will also help lecturers in teaching students effectively. It describes additional educational material intended as kits for teachers or trainers or as tutorials for students, usually packaged for use with a computer. The development of this project will allow the lecturers to view the final outcome of students understanding about software engineering with performing evaluation quiz using questions bank functions.

This project might be a good start in approaching a new systematic method of understanding specific and focus topic in Software Engineering other than books.

## 1.6 Expected Output

This project is expected to be one of the desktop application software engineering that will help smoothen the process of understanding the cost estimation concept in Software Engineering by following the more systematic methods. It also expected to lighten the burden among software engineering students.