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(HURUF BESAR)

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DEVELOPING SOFTWARE ENGINEERING COURSEWARE (PROJECT MANAGEMENT)

NORISHAM BIN AB MUTTALIB

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

SOFTWARE ENGINEERING COURSEWARE (PROJECT MANAGEMENT)

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

STUDENT : _____ Date: _____

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SUPERVISOR: _____ Date: 26/6/2008

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DEDICATION

Special thanks to my beloved family and person who always support me for complete this project to gather to achieve the Bachelor of Computer Science.

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Alhamdulillah, very thankful to the Allah S.W.T for give me good health and spirit throughout this project. I am grateful to my supervisor Puan Massila binti Kamalrudin for her guidance in carrying out the project and his valuable comments on the drafts of the thesis. For Nor Zawani that always give full support for me to finish my project. My friends who I ask for help from them a lot and I also would like to thank to all student of Software Engineering course in spend time to answer my survey during collecting information for analysis phase. A special word of gratitude should be given to my family for the unfailing support and encouragement to enable me to complete my degree project.

ABSTRACT

Software Engineering Courseware (Project Management) is desktop application which is stand alone application. The objective of the application is to introduce a courseware for Software Engineering subject at Universiti Teknikal Malaysia Melaka as an additional learning tool for this subject. This application is a learning help tools to help student in learning of this subject. Application is used by student at UTeM who take this subject every semester of learning. Function such as notes, fun activities, videos, and print notes are included in this courseware. In development process methodology, object-oriented approach is used as a project methodology for this project. The Prototype method is chosen to aid in this courseware development based on the capabilities of this approach in smoothing the software development process. Result from this application development is hoped to satisfy the user in order to make differentiation way of study environment.

ABSTRAK

Software Engineering Courseware (Pengurusan Projek) adalah merupakan aplikasi komputer. Objektif aplikasi ini adalah untuk memperkenalkan *courseware* untuk subjek Kejuruteraan Perisian di Universiti Teknikal Malaysia Melaka sebagai peralatan tambahan dalam proses pembelajaran untuk subjek ini. Aplikasi ini adalah sebagai pemudah cara tambahan bagi pelajar untuk belajar subjek ini. Aplikasi ini akan digunakan oleh pelajar UTeM yang mengambil subjek ini terutamanya bagi pelajar Sains Komputer pada setiap semester belajar. Fungsi seperti nota , aktiviti menarik, video dan cetak nota akan dimasukkan dalam aplikasi ini. Metodologi atau kaedah yang diguna pakai semasa pembangunan projek ini adalah berdasarkan kepada orientase objek. Kaedah *Prototype* telah dipilih untuk membantu proses pembangunan perisian ini. Hasil daripada pembangunan projek ini, diharap dapat memenuhi kehendak pengguna dalam menghasilkan kaedah pembelajaran yang berbeza.

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1.1 Project Background

Today technologies make people work more efficiency and easier. Especially in information technology, we have too many technology that have been computerize to make work easier to people. Here we look at student on their study to make them easier to understand what they have learned in class. Many ways have been make by lecturer or teacher to teach student and make them understand very well in what they have learned. It is may be sing a song, or study group and so on. Lecturer may be handle quiz to test their knowledge on study.

Information technology for learning can be applied to make learning easier to understand. Examples that have been apply today using information technology is web based learning which is it can be access from any internet access. There also courseware technique to make change their way in learning. For that, Software Engineering Courseware (Project Management) is a project to be developing as learning tools for student understand project management in Software Engineering subject at UTeM. This courseware will be focus on learning on that topic which is project management. This topic is an essential part of software engineering. This topic also chosen because of student also can not understand very well even learn it in class.

For this project, Software Engineering Subject Courseware (Project Management) is courseware projects that will be develop for students and lecturers in order to make learning can be easier to understand the topic as additional tools for learning Software Engineering especially in UTeM. Besides that, this courseware will be guide to give more understanding for those who use this as additional learning tools besides as usually method like teaching in class. This will give lecturers and student as additional learning tools in way to have different learning method.

1.2 Problem Statement

As usually, teachers or lecturers will teach students in class using slide or white board as a tools to give students knowledge and make them understand in learning. Besides that, papers and books as normally tools that are used in learning in everywhere like school or university. But today, technologies should change everything in education.

Internets are the most useful source that is using by people today to get information in the world. There also use the internet to get knowledge and study something from the World Wide Web. There have much information for everything that needed as soon as possible. But we can not avoid the concise of information that get from the internet. There is also so much information that is not concise as people want it.

Sometimes, student gets wrong information from the internet as way to find the information that needed. From that, student will get wrong information. Others is about technology-based learning is poor availability within the marketplace of high quality courseware that is tailored to the needs of individual users and groups.

Courseware in this context includes all kinds of educational material and content that is distributed via the web for training purposes from the users' point of view, as well as collections of multimedia documents interrelated by means of

navigational structures. Its quality is chiefly concerned with four main dimensions, these are: the content of learning materials; the presentation of these materials; the way in which they are taught; and, the overall functionality of the courseware.

All four dimensions have to be considered at the same time continuously throughout the life-cycle of the courseware to ensure that the final product is of high quality and thus to facilitate a high learning gain. However, current courseware development approaches do support continuous quality assurance of all development artifacts and the courseware to be did not produce itself nor do they assure the quality in all four courseware dimensions equally. For this reason, Software Engineering Subject Courseware (Project Management) project will be develop to get improvement target for students and lecturers in gain the knowledge in study Software Engineering subject.

1.3 Objective

The objective that needs to be emphasis in this project is to develop a courseware which to help learning in Software Engineering subject. There are a few difficulties faces in learn SE subjects by student:

1. Student does not have any interactive learning technique to learn this subject.
2. This subject is difficult to understand by other course like BITC and BITD course.
3. Students do not have any interactive learning component to make learning better and make student not boring in class.

These tools should help lecturers and students that take this important subject in software engineering to understand it very well. The main goal of this project is to develop courseware for sub topic in software engineering which is project management path. There are a few objectives state below that will be use to develop this project:

1. To develop courseware for project management of software engineering for student in learning Software Engineering (Project Management).
2. To make student more understanding in learning of this course.
3. To develop a good presentation of these materials of courseware.
4. To develop a good materials courseware content.

1.4 Scope

This courseware actually for software engineering used in learning for FTMK students that take this subject and also can be used to understand by any who want develop project or manage project. There are some states of modules that will be developing in this project:

1. Learning module:
   This module is the main module in this project that will produce materials of main content of courseware.
2. Comprehension module:
   The way of approach to use in courseware to make user more understand study the topic.
3. Interactive module:
   Interactive element will be inserting in this project to give more interesting learning for student.

1.4.1 User

In developing courseware of SE subject there are two main user targets for this project:

1. Students.
2. Lecturers.

1.5 Project Significance

Like objective describe above, the important of this project is to be a useful tools as additional learning tools to help student and lecturer. This tool should help them to have different learning skill others than common like learning in class with lecturer and white board. There are content with important materials of the subject that are focused which is Software Engineering subject.

In order to give acknowledgment for user, the content will be present in good courseware presentation. User who use this courseware should feel easier to understand and adorable with the tools when use it. The functionality of it content is related to courseware development rules which is can give user positive output in study using this courseware.

1.6 Expected Output

The courseware that will be developing by this project is expected to be used by user with positive feedback. User can easier use this tool to help them in learning. Besides, user is expected to apply this courseware to test their understanding on the learning of that subject.

Besides that, this courseware is expected to produce with full content but simple and make user friendly when use it. In order to have a good courseware, this courseware will have interactive user interaction. Other than that, user also will be produce with a lot of example of questions to help them in exam and others.

1.7 Conclusion

Technology make people work more efficient and get positive benefits from that. By that reason, people must use the technology with the right way and do not use it just for negative thing. In education path, technology give much advantages and people can get education with easier by using the technology. Because of this reason too, here we try build one of the path of technology which is develop a courseware for education as a learning tools for people. This courseware will benefit them as learning helper to them get information and study what about they must to know. As a result, Software Engineering Courseware (Project Management) will help student and lecturer in UTeM especially in this Software Engineering subject.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

In this chapter, discussion will be focus on important part which is call Literature Review and Project Methodology. For the first section; literature review, it will discuss and review about approach and related research, reference and other findings about this system. Besides, it also states other approaches that will be used in this project after comparison with previous approaches. In project methodology section, selected approach or methodology will be described the activities that may do in every stage. Then it will explain several terms or keywords that being used in the project to being develop.

This chapter also can be concluding as section to state or identify the problem statement arises based on project domain. Beside to determine the overall objective of project to be developed to solve the problem those occur to achieve all of objective stated. Beside to develop a project, the thing that developer should need to know is what they are going to develop. For that, the developer needs to know everything clearly about the project.

The requirements that are requisite in this system will be explained in high level project requirements. Software development tools or software tools and hardware requirement to be used for software development or project management

purposes will be stated in this chapter. The actions plan prior to the end of the project also will be explained. This chapter will be continued with conclusion whereby it will conclude about this chapter and also gives an overview about the next chapter.

2.2 Facts and Findings

Courseware is the application that presents learning content to the learner. "Standard" signifies that a developer has produced this software title for a wide audience and not specifically for your firm. An example of standard courseware would be a module on how to use Microsoft Word or how to manage difficult employees. Standard Courseware is generally inexpensive because the software maker spreads the development cost over a large number of users and does not surrender any intellectual property rights to you. On the other hand, the content is generic (Rick Humphress, 2003).

In recent years, e-learning started to attract a lot of attention from researchers as well as practitioners. Many of the existing architectures of e-learning systems are mainly based on plain client-server or peer-to-peer architectures and are therefore suffering from drawbacks like poor scalability or complicated interchange of content.

The new challenge for designers and HCI researchers is to develop software tools for effective e-learning. Learner-Centered Design (LCD) provides guidelines to make new learning domains accessible in an educationally productive manner. A number of new issues have been raised because of the new "vehicle" for education. Effective e-learning systems should include sophisticated and advanced functions, yet their interface should hide their complexity, providing an easy and flexible interaction suited to catch students' interest. In particular, personalization and integration of learning paths and communication media should be provided.

New information and communication technologies allow learning "far away" from the teaching source. One challenge for HCI designers is to develop software

tools able to engage and support novice learners. To this aim, in addition to User-Centered Design (UCD) guidelines we need Learner-Centered Design (LCD) methods to make new learning domains accessible in an educationally productive manner. A number of new pedagogical issues rise depending on the new "vehicle" exploited. Contents and teaching strategies must undergo re-purposing, in order to fully exploit the new technologies, adapting to each learner profile. We face a twofold challenge. Effective e-learning systems should include advanced functions, yet their interface should hide their complexity to learners, providing an easy interaction grasping the students' interest. Despite of this, we often find a mere electronic transposition of traditional material, provided through rigid interaction schemes and awkward interfaces. A poorly designed interface becomes a barrier to effective learning (Usability of E-Learning Tools).

According to Usability of E-Learning Tools Research (2003), Ensuring usability is one of the main challenges of e-learning systems developers. Norman asserts that a formative product, to represent a rewarding experience, should:

- be interactive and provide feedback
- have specific goals
- motivate, communicating a continuous sensation of challenge
- provide suitable tools
- avoid any factor of nuisance interrupting the learning stream

Moreover, it should be pedagogically suitable, though attractive and engaging. Using new technologies does not mean to reject traditional and successful teaching strategies, e.g. simulation systems, problem-based learning, and direct manipulation. So, a learning system should allow integrating such strategies.

Forcing students to spend longer time understanding poorly usable interfaces than understanding learning content disturbs accommodation of new concepts and overall retention of what is being learnt. Interfaces ought to concentrate on learners' needs and goals, providing a clear idea of content organization and system

functionalities, simple navigation, advanced personalization of paths and processes. The user should be involved in the learning process without being overwhelmed.

2.2.1 Case Study 1-Analysis of Software Engineering Survey

Below is the analysis of Software Engineering Subject Survey. The survey involves analysis of particular path in Software Engineering Subject that been taken by student at Universiti Teknikal Malaysia Melaka. These surveys take part from several course of student that taken this subject which is from Software Engineering, Database, Network, and Multimedia Course.

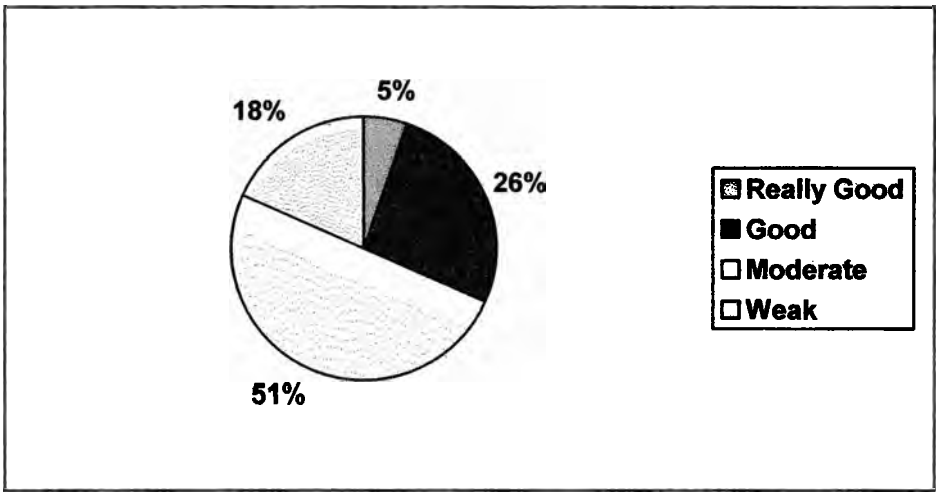

Figure 2.1: Percentage of understanding on SE Subject studying.

Based on figure 2.1 above, analyses consist on average of 40 students that had taken Software Engineering Subject. There are only 5% student have really good understanding on this particular subject. 26% students are in good area of understanding in this subject. There are half of student are in moderate mode which is 51% students. These value show that almost student can not understanding this subject very well.