ADAPTIVE MEDICAL COURSEWARE SYSTEM FOR MEDICAL STUDENT

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ABSTRACT

Courseware system are the independent learning at many years now, have many learning system using online and technology system. This paper discuss the medical courseware that an effectiveness of this courseware with user knowledge level. This tutoring system will illustrates the many task until the student really understand about their syllabus (Dengue Fever).

The main objective of this project is to develop tutoring courseware system for medical student at dengue fever syllabus. The implementation of this system will help to reduce the problem that faces of many medical students having their learning using the traditional way such as book.

This system is developed using waterfall model approach ADDIE model. This project is expected to become a suitable teaching material that captures students' interest in the studies by using interactive multimedia. This courseware is developed by using the Adobe Author ware 7.

ABSTRAK

Perisian kursus adalah sistem pembelajaran adaptif pada era teknologi baru sekarang, is mempunyai sistem pembelajaran yang menggunakan sistem dalam talian dan teknologi komputer. Kertas kerja ini membincangkan perisian kursus perubatan dimana keberkesanan perisian ini pada tahap tingkat ilmu pengetahuan pelajar. Sistem ini akan menunjukkan keberkesanan yang banyak sehingga pelajar benar-benar faham tentang sukatan pelajaran mereka iaitu (Demam Denggi).

Objektif utama projek ini adalah untuk membangunkan sistem perisian kursus tuisyen untuk pelajar perubatan pada sukatan pelajaran mereka terutama demam denggi. Pelaksanaan sistem ini akan membantu untuk mengurangkan masalah yang dihadapi oleh pelajar perubatan kerana merak masih menggunakan cara lama untuk memperolehi maklumat pelajaran seperti buku.

Sistem ini dibuat dengan menggunakan model ADDIE. Projek ini dijangka akan menjadi satu bahan pengajaran yang sesuai yang boleh menarik minat pelajar dalam pelajaran mereka dengan menggunakan multimedia interaktif bagi menarik perhatian pelajar utuk lebih gemar belajar dan mudah memahami sukatan pelajaran teresbut. Perisian kursus ini dibangunkan dengan menggunakan Adobe author ware 7.

TABLE OF CONTENTS

SECTION	TITLE	PAGE
	STUDENT DECLARATION	**ii**
	SUPERVISOR DECLARATION	**iii**
	ACKNOWLEDGMENT	**iv**
	ABSTRACT	**v**
	ABSTRAK	**vi**
	CONTENTS	**vii**
	LIST OF TABLE	**xi**
	LIST OF FIGURES	**x**

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
1	**INTRODUCTION**	
	1.0 Introduction	1
	1.1 Problem Statement	3
	1.1.2 Background of study	3
	1.1.3 Objective of the study	4
	1.2 Review previous work	4
	1.3 Current system and limitation	5
	1.4 Terminology	6
	1.5 Method of approach	7
	1.6 Indication of scope and limitation the study	7
	1.7 Outline of material	8

2 REPORT BODY

2.1 Introduction 9

2.1.1 Introduction of Courseware 9

2.1.2 User requirement 10

2.1.3 Existing Courseware 11

2.2 Flow Chart / Story board / 14

2.2.1 Methodology 17

2.2.2 Story board project 21

2.3 Method and material 24

2.4 Technical result and comparison with previous work 26

2.5 Discussion Analysis material 29

2.5.1 Adobe Fireworks CS5 29

2.5.2 Adobe Author ware 30

	2.6 Testing plan and result	32	
	2.6.1 Testing function	33	
	2.6.2 Result questionnaire	36	
	2.6.3 Design project	41	
	2.6.4 Detail Module Description	42	
3	**CONCLUSION**	58	**ix**
	3.0 Conclusion	58	
	3.1 Recommendation	59	
REFFERENCES		60	
APPENDIX	**QUESTIONNAIRE TESTING SYSTEM**	61	
	USER REQUIREMENT	62	
	PLAGARISM RESULT	63	
	GANTT CHART	64	

LISTS OF TABLE

TABLE	TITLE	PAGE
1	Comparison between existing system	26
2	Testing Function	33

PART 1

1.0 Introduction

Multimedia in education seems to be an interesting new way in the learning process. Nowadays technology of web-based application has many advantages to increase and improve our productivity of organization in the world. Reading book system is the old material study, that's mean the individual who gives a teaching at some person or the group lecture or some instruction where need to tutor. Doing that, the students can help themselves from that courseware system, or guide them for get the point of study, such as student will become an independent learner thus they not always need a tutor. Adaptive Courseware System Medical Student (dengue fever) this material usually will use with a computer, that's means, the entire course or any subject used a courseware.

A project that integrates faculty-developed computer using courseware, the tutoring was implemented as a teaching-learning strategy to enhance mastery of content and assist in development of decision-making skills. Computer lessons are interactive and actively involve students in the learning process, using a traditional teaching, the medical student have a limits of their study. So that, adaptive courseware system will improve student learner more effective and efficiency. The courseware contains a comprehensive learning system including tutorial, simulation, and problem solving components. With this courseware, the students can learn basic concepts about dengue fever syllabus.

This project is about creating adaptive courseware about dengue fever syllabus for medical students. Even though we have reduced mosquito breeding, the number of dengue cases in Malaysia has continued to rise. We will enhance the existing research on this disease. The purpose of this software is for medical student that have problem to learning, some student they still use old material such as books, another research. So this software is easier the medical student to study. Besides that, using the old material for study, student only can learn in one

place with limited time such as at library. With this software, easier for them to studying and learning at anywhere and anytime they like.

Dengue fever (DF) is a rank high infectious disease and is considered to be most important of arthropod born viral diseases. Dengue Fever is caused by mosquito of genus Aides' most important is A.aegypti that is a day biting mosquito, rests indoors and can be breed in small collection of water. Rainy season increase risk of DF as it increases larva population also ambient temperature and humidity favor viral propagation. DF was first recognized at Manila in 1953. In 1998 major pandemic in 56 countries recent epidemics in Bangladesh and India. PREVENTION Vaccination: Live attenuated tetra-valet a vaccine against all serotypes is under trial recombinant vaccines is also being tried. Many strategies like environmental control reducing vector breeding site, solid waste management proper water and public education, for chemical control space spraying of insecticide regular monitoring of mosquito resistance pattern.

1.1 Problem statement

Medical student have problem learning, their just collect information from different sources (Barrows 1996: 6). The medical student just gets the information from libraries, journal articles, database and different textbooks. Courseware usage is effective among the field dependence students, for medical students, they have difficulty in handling the courseware. The best multimedia control strategy based medicine in developing courseware for subjects at the university level, Common for lecturers to teach content dynamic nature of education and the visual and lecture method in tradition.

Tendency lecturer universities use computer-aided instructional media and multimedia is very less. The problem that arises from this is that, students is difficult to understand the content syllabus studies using old material, courseware applications are more compatible across platforms than traditional installed software and this application it's easy for the end user and really fast to them understand how to use it. Author ware software is the optimum software, because all your data will be save on secure and always updated, it is proven using author ware is the best way for doing tutoring.

1.1.2 Background of study

This study are based from a few problems faced by the medical student that is how medical student improvement their learning of study about dengue fever, and consist tutorial, slide notes, quiz by chapter, question, problem solving and integrated learning system. Teaching and learning is always changing and development in line with the current demands in the national and global levels.

In recent years, many countries as to meet the needs and quality of health care based on the rate of change in population health should be taken care have recognized medical education. Furthermore, this application was design for medical student learn how dengue infection process such as factors of rainfall or temperature and humidity. Author ware software it's just use the CD

room, no need to install or download any software. Tutors are expected to assist medical student in learning the courseware covered the syllabus of dengue fever.

1.1.3 Objective of the study

• To develop adaptive tutoring courseware system.
• To test functionality the multimedia system.
• To test an effectiveness of this courseware based on user knowledge level.

1.2 Review of previous work and relationship to current project

To develop the new system, the previous product or existing system is need with do a research, references, case study or other findings on that product. It is because to do a comparison in terms of hardware and software that has been used and also the presentation of existing system. So from that, makes the improvement for the new system.

The system adaptive of courseware is interactive learning for student experience. This system has an adaptive system with a language interface. The important of this system is having a teaching material, problem solving, and notes. That will make a student have an experience learning using the multimedia

technology, can explore the new self-explanation and they can feel comfortable with the multimedia learning environment.

Using the courseware system, the medical student will more independent and more self-confident to having they courses, because that, the student not only depend on lecturer or teacher to learn their courses especially at dengue syllabus .

1.3 Current system and limitation

Nowadays has some application of courseware for medical student learner, such as Self-Study Courseware Packages to Enable Students Attain Key-learning Outcomes Specific to a Compulsory PRS Module and Top 10 Free Health & Medical open Courseware collections. Open courseware collections focusing on health and medicine assist students and healthcare professionals learn more about their particular field, further their careers, and increase their learning potential without enrolling in and commuting to expensive continuing education organizations or colleges. Health and medical open courseware collections are available free of charge and are accessible any time and any place, as long as you have a connection to the Internet.

Pollack [1987] says, the student input has a limit the ability of study, that's means the human cannot get the all of they learn at a same time. Using the tutoring system the student can play back the tutorial until there really understand and get about the courses.

1.4 Terminology

Adaptive learning

Adaptive learning is an educational method that uses computers as interactive teaching tools. Adjust computer presentation of educational material to the learning needs of students, as shown by their responses to questions and tasks. The teaching is allowing electronic education to combine the interactivity provided to students by actual human teacher or tutor. Technology encompasses aspects derived from various fields including computer science, education, and psychology

Knowledge level

Rationalizes the knowledge level user behavior, while the behavior of users mechanizes symbols. At the level of knowledge, need to determine what the user knows and what goals, separate logical abstraction from the details of implementation.

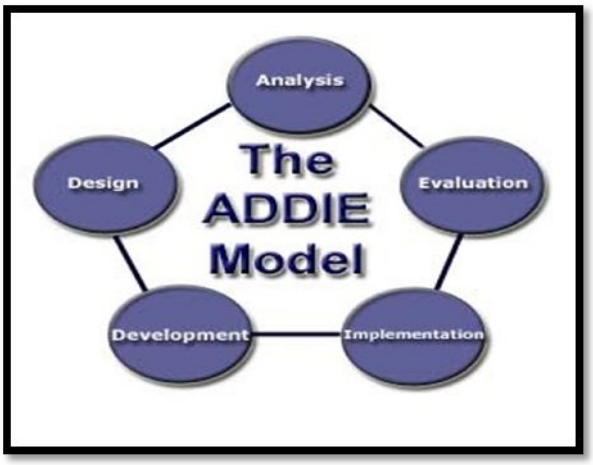
Effectiveness

Effectiveness is the capability of producing a desired result. When something is deemed effective, it means it has an intended or expected outcome, or produces a deep, vivid impression.

1.5 Method of approach

This ADDIE model consists of certain phase that is:

1. Analysis
2. Design
3. Development
4. Implementation
5. Evaluation



1.6 Indication of scope and limitation the study

Scope of study

In this project focus for respondent medical student having their learning and also to the lecturer, it have a tutoring about how dengue fever infection and also how to prevention. This tutoring adaptive user knowledge level at basic level, medium level and intermediate level, where integrated multimedia element purposely for dengue syllabus. This project using the hardware and software for make it success, the hardware is computer, large hard disk gigabyte for smooth

video tutoring, and the software may use the Adobe Author ware, Adobe Photoshop and also adobe flash.

1.7 Outline of material

This project contains 2 parts only. Part 1 gives an overview of the study and includes introduction, problem statement, objectives, method of approach, and scope of study and outline of material. Part 2.1 until 2.3, reviews the previous research that was conducted in this area. This includes reviewing books and articles related t the subject of courseware and macromedia author ware and user requirement. . The relevant books and repots from those researches will be discussed in detail. Part 2.4, more at techniques used in performing this research and discusses the process flow of this study. 2.5 all about discussion analysis material such as hardware and software used in this project. 2.6 discuss about testing plan and result. 2.7 show the result of implementation and conclusion. 2.8 conclude the all report.

PART 2

2.1 Introduction

This part will describe about literature review where it's related all of application. Have two phases in this chapter, for the first phase it will review about the system for the second phase, will provide the review, method and equipment. For the reference source should be taken from any information be related about this application like dengue fever and author ware that material such as sources from notes, paper, book, articles and journals.

Introduction Courseware

Courseware is a term that combines the words 'course' with 'software'. Its meaning originally was used to describe additional educational material intended as kits for teachers or trainers or as tutorials for students, usually packaged for use with a computer. The term's meaning and usage has expanded and can refer to the entire course and any additional material when used in reference an online or 'computer formatted' classroom.

Courseware is an educational material intended use for teachers and students, usually packaged for use with a computer. Courseware can encompass any knowledge area, but information technology subjects are most common. Courseware is frequently used for delivering education about the personal

computer and its most popular study applications, such as word processing and spreadsheet programs.

The use of computer hardware and software in education and training dates to the early 1940s, when American researchers developed flight simulators which used analog computers to generate simulated onboard instrument data. One such system was the type19 synthetic radar trainer, built in 1943. From these early attempts in the WWII era through the mid-1970s, educational software was directly tied to the hardware, usually mainframe computers, on which it ran.

User requirement

This project is for medical student having they learn about dengue fever syllabus, adaptive courseware system using author ware was design based on knowledge of medical student. There has a limited set term of question and their solution, to get detail user requirement the designer should have a question and answer with a user (medical student) to help them towards the correct solution. From that questioner, we can know what user really want for using this system, the tutoring of dengue fever teaches students learning by presenting a visual slide as a problem scenario and to classify the diseases such as dengue fever syllabus.

Doing a user requirement, developer needs to spend time with the user when they are using the current system. For this process has a multiple meetings that I have with a user, that client will be a medical student. In this meeting I have to get a user understand what a courseware really do and what they want or need. After all user requirements have collected, I do some sketch of system like fake interface of web pages and user what come up with.

A requirement document is the document or specification to do that system, in this document have all what a user want and really need, such as easy to they

understand how to use that system follow their level at basic level, intermediate level or advanced level. In the document have the current system, user characteristics, assumption of interface, any constrains, dependencies, functional requirements and non-functional requirements.

Existing Courseware

"Tufts OpenCourseWare" is an online version courseware written by William and Flora Hewlett Foundation published in the OPEN. Tufts University Open Education Resource website [6], the overall system of courseware is described in the abstract that written by the courseware author: "Tufts University is committed to offering the world's learners free access to its many academic resources. Tufts OpenCourseWare (OCW) seeks to capitalize on the potential of the internet to eliminate borders and geographic distance as obstacles to the instantaneous exchange of knowledge and new ideas. Unlike distance learning programs that charge tuition, provide formal instruction and limit participation, OpenCourseWare offers all course materials free to everyone with online access. Educators from around the world may upgrade their classes; students may enhance their coursework or pursue self study; the general public may glimpse the depth and breadth of what leading universities are offering and benefit from reading lists and lectures". The courseware covers nine parts; it has paths and side to follow. There has much input for user (medical student) learner their syllabus [6].

Figures below show parts of the online medical courseware, named "Tufts Initial parts of the courseware are display at the upper part at the online page, followed by the syllabus (Figure 2.1). The left side of page shows the attributes of courseware.

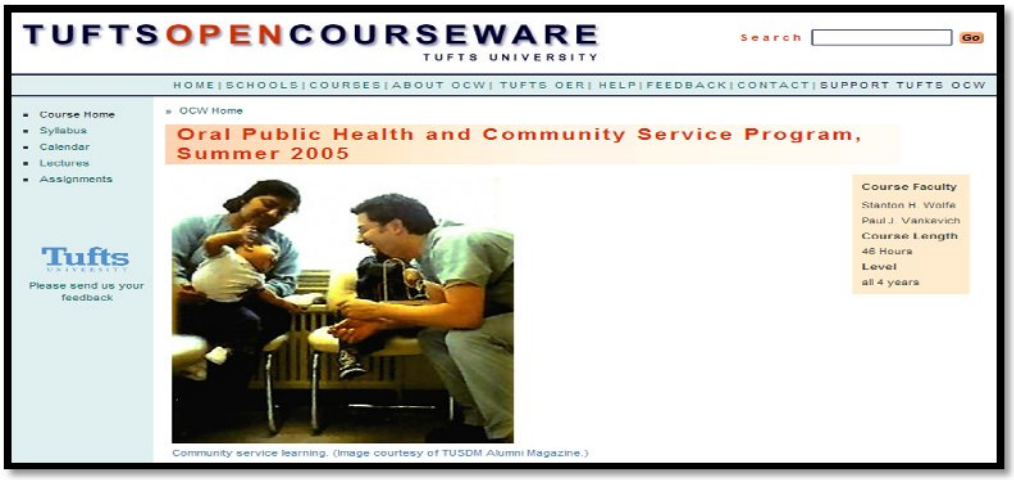


Figure 2.1 First pages of Course Home page

When reach at the end of the text, several options in blue box are given, the selected choice will determine where to continue the learning.

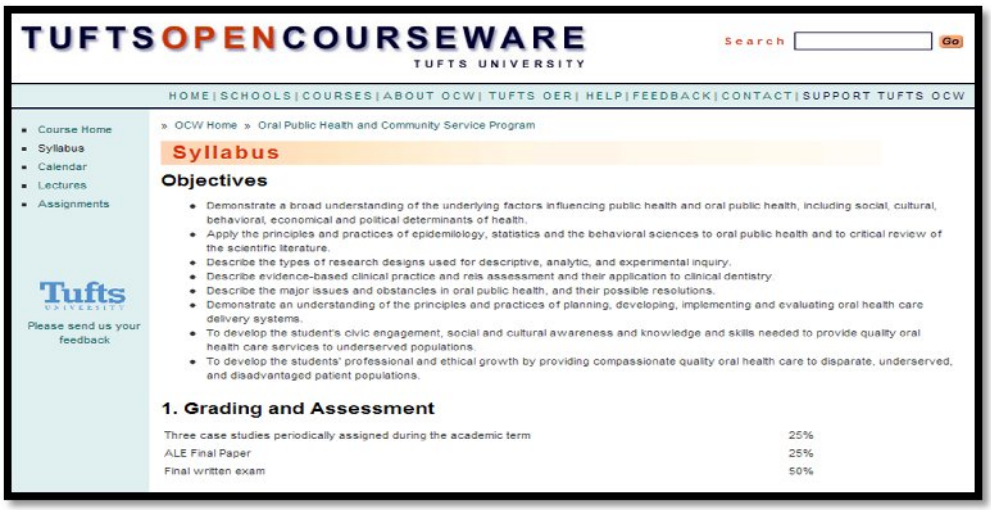


Figure 2.1.1: Syllabus page

This page explain about demonstrate a broad understanding of the underlying factors influencing public health and oral public health, including social, cultural, behavioral, economical and political determinants of health.

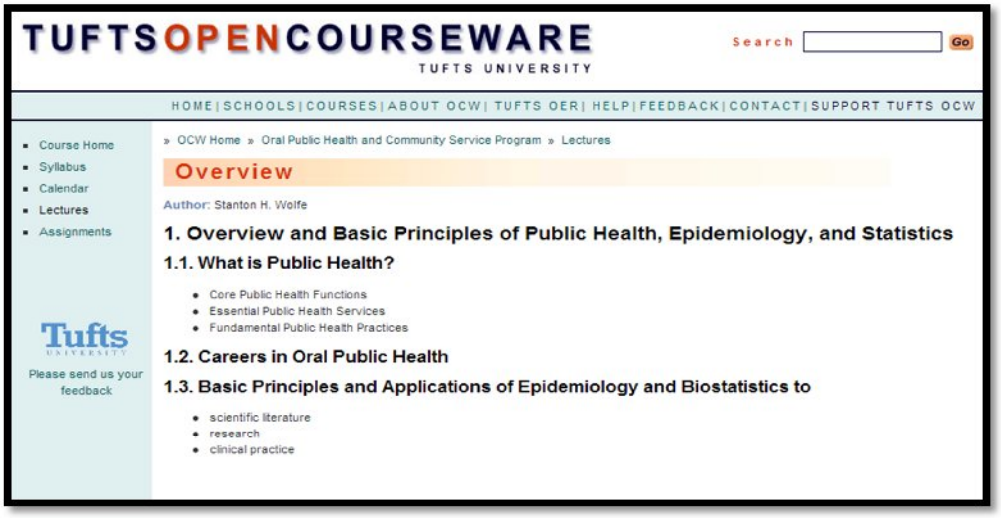


Figure 2.1.2: Lectures page

At this lectures page has an overview and basic principle of public health.

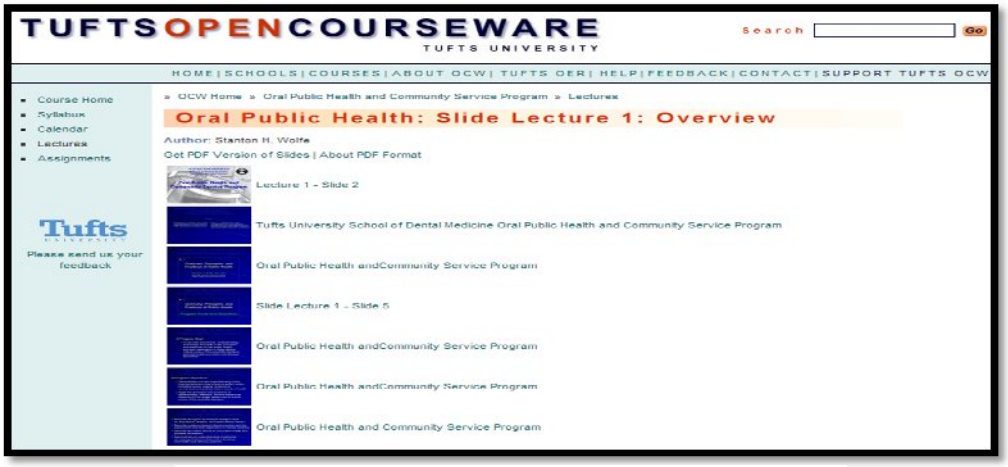


Figure 2.1.3: Slide Lecture page

Inside Slide Lecture page has several part of their subject and student can having their learning based on this slide.

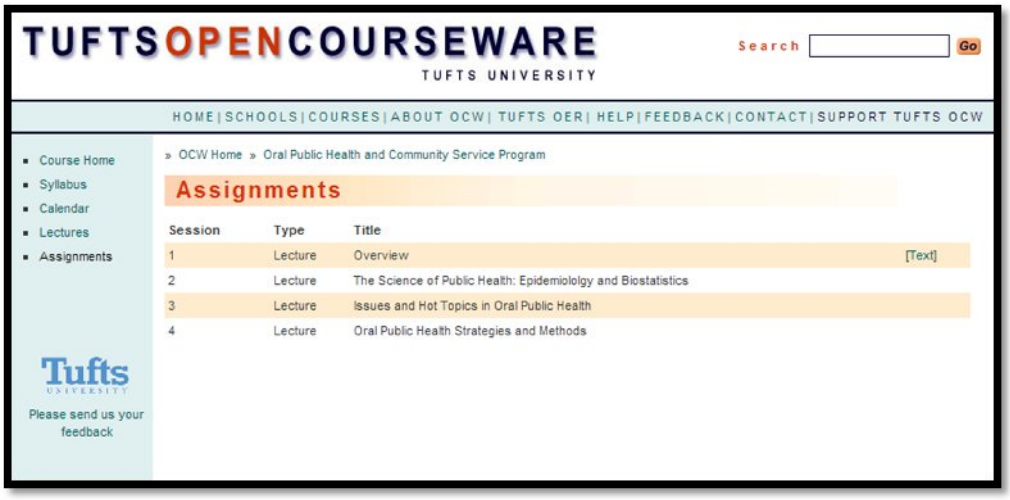
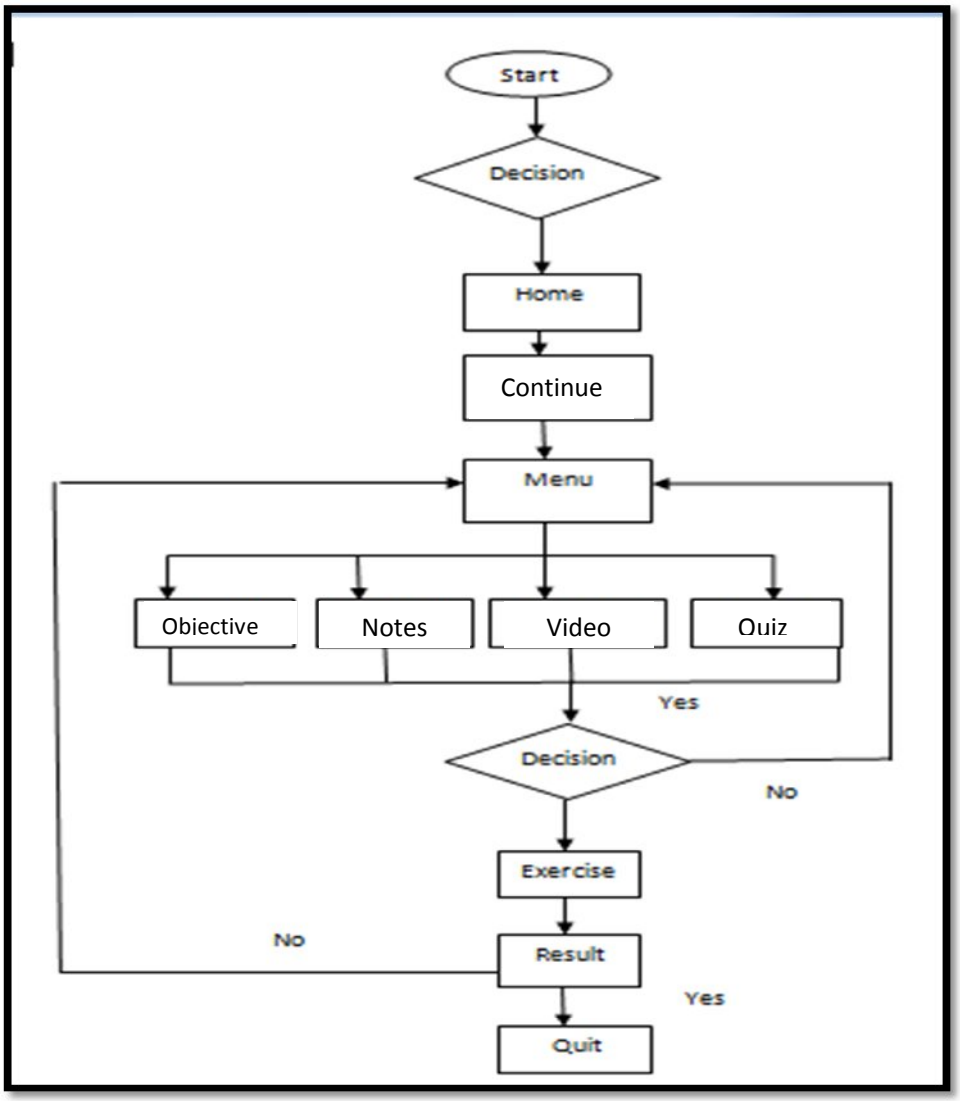


Figure 2.1.4: Assignment page

After student having their learning, they can take some assignment to test their knowledge based on slide lecture.

2.2 Flow Chart / Story board

In this process, will interpret all about how this projects done. Besides that have a flow chart process or software process and storyboard for the Adaptive Courseware System using Author ware for Medical Student Dengue Fever Syllabus. The first phase until the last phase will show all the flow of process and detail for doing this application.



2.2.1 Flow chart for overall project

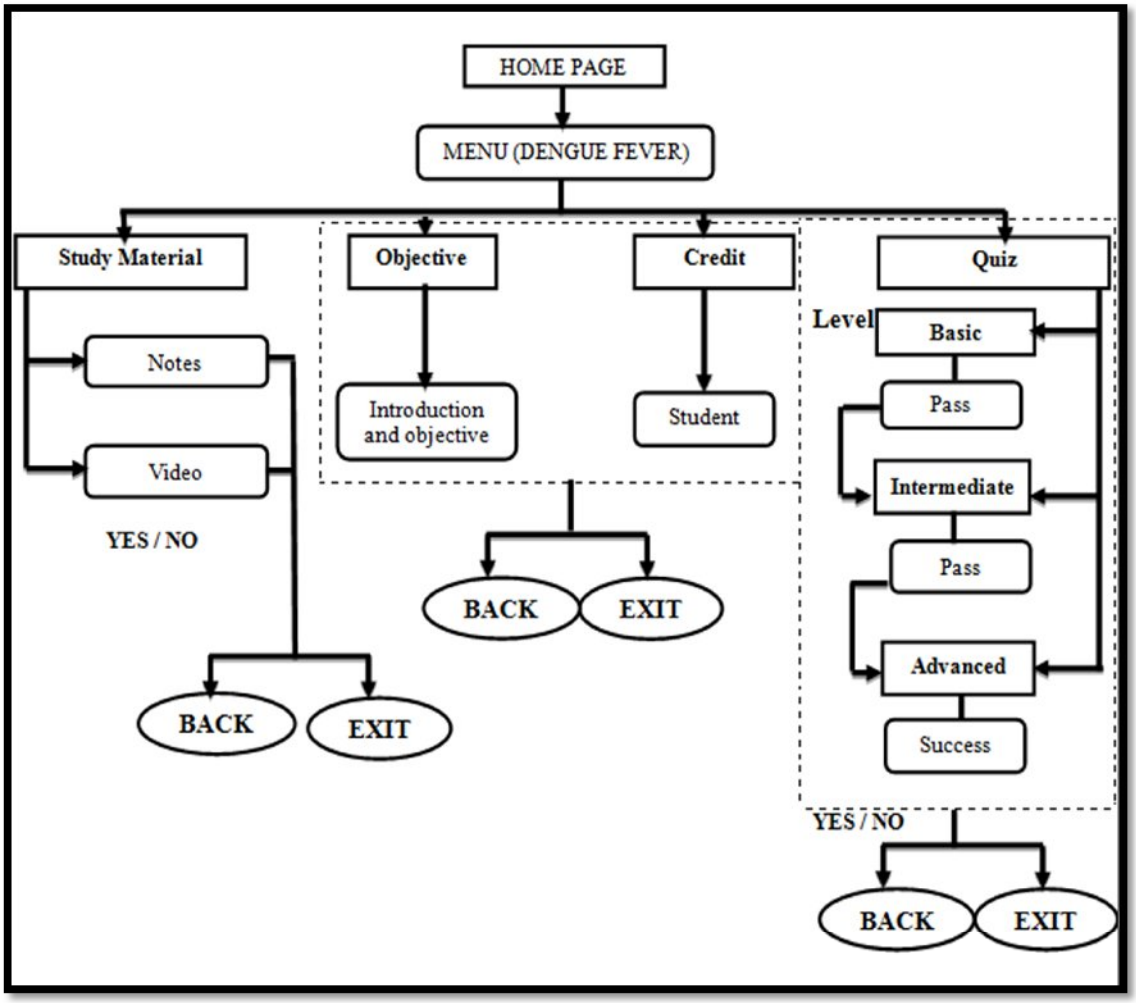


Figure 2.2.2 shown the flow chart of courseware