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E-Learning of transmission lines / Nur Anaalina Che Saad.

**E-LEARNING OF TRANSMISSION  
LINES**

**Nur Anaalina binti Che Saad**

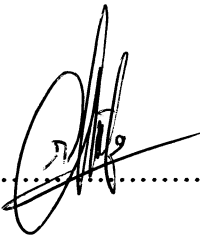
**4 BEKP**

**MAY 2009**

"I hereby declare that I have read through this report entitle e-Learning of Transmission Lines and found that it has comply the partial fulfillment for awarding the degree of Bachelor of Electrical Engineering (Industrial Power)"

Signature

:

.....  


Supervisor's Name

:

PUAN RAHIFA BINTI RANOM

Date

:

22 APRIL 2009

**E-LEARNING: TRANSMISSION LINES**

**NUR ANAALINA BT CHE SAAD**

**A report submitted in partial fulfillment of the requirement for the degree  
of Bachelor of Electrical Engineering (Industrial Power)**

**Faculty Of Electrical Engineering  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**APRIL 2009**

I declare that this report entitle e-Learning Transmission Lines is the result of my own research except as cited in the references. The report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : .....  .....

Name : NUR ANAALINA BINTI CHE SAAD

Date : 22 APRIL 2009

**To my beloved family**

## ACKNOWLEDGEMENT

First of all, I thank to ALLAH, the Lord Almighty, for the health, strength and strength and perseverance needed to finish this project. I wish to express my deepest gratitude to my supervisor, Puan Rahifa binti Ranom who has support me during this project PSM. Thank also for her enduring patience.

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## ABSTRACT

This paper introduces a report for final year project which is an e – Learning project. This project can be use by student or lecturer and can also use it as teaching equipment. Electronic learning ( or e-Learning ) is a type of education where the medium of instruction is computer techonology. A transmission line is the material medium or structure that forms all or part of a path from one place to another for directing the transmission of energy such as electromagnetic waves or acoustic waves, as well as electric power transmission. This e-Learning covered topic on transmission lines which contain inductance, resistance, capacitor and line model. Example are given in line model for user understand well about the topic. It also has quiz to test the user's comprehension. The software use to present this e- Learning is Macromedia Flash. The interactive movie and moving image that have include in this e-Learning will made user more understand. User can explore every scene only with just click the button. To create an interactive e-Learning tool it is necessary to employ little programs. There also has movie or moving image where user can explore and see by them.

## ABSTRAK

Kertas kerja ini merupakan satu laporan kemajuan untuk projek tahun akhir iaitu projek e-Learning. Projek ini boleh digunakan oleh pelajar atau pensyarah dan boleh dijadikan sebagai alat bantuan mengajar. Pembelajaran secara elektronik ( atau e-Learning ) adalah sejenis pendidikan di mana ia menggunakan teknologi komputer sebagai bahasa pengantarnya. Talian penghantaran merupakan satu struktur yang membentuk semua atau sesuatu bahagian tindakan dari satu tempat ke tempat yang lain dengan memberi arahan penghantaran tenaga seperti gelombang elektromagnet atau ombak akustik, serta penghantaran kuasa elektrik. Projek e-Learning ini merangkumi tajuk-tajuk yang terdapat di dalam talian penghantaran termasuklah kerintangan, aruhan, kapasitor dan juga model garis. Juga dimasukkan kuiz sebagai latihan kepada pengguna. E-Learning ini akan menggunakan perisian Macromedia Flash. Interaktif yang dimasukkan ke dalam e-Learning ini akan membuatkan pengguna lebih memahami tentang tajuk ini. Pengguna boleh meneroka kesemua halaman hanya dengan menekan butang. Bagi mencipta satu alat e-Learning yang berinteraktif adalah penting untuk memasukkan beberapa program-program yang menarik. Terdapat juga filem atau gambar bergerak di mana pengguna boleh meneroka dan melihat dengan sendiri.



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## CHAPTER 1

### PROJECT FRAMEWORK

#### 1.1 Introduction

Now, students are already proficient with computer platforms, word processing, Power Point and even web building. In Taiwan only, 70 universities and colleges have already set up distance-learning environments using internet. The advantages of distance education is students work on their own and in their own time. E-learning can provide a more flexible learning environment extending the range of influence of education. It not means to replace the classroom setting, but to enhance it taking advantage of new content. It may be true that this is difficult for some students at first, but in a well executed interactive program the students are not isolated.

Another big advantage of e-Learning is the independence of working place and time. The student has the opportunity to learn in his favorite environment at the time of his choice. This might not seen as a great advantage for the university students, but it is especially important for the for the working engineer who wants to update his knowledge by taking e-Learning lesson in the evening after work and on the weekends at home.

This approach gives the advantages of full working place independent for the student. I f there are not pressing deadlines for homework and tests, there is also the advantages of a certain amount of working time independence for the student. Today, there are different web based

platform available that offer tools like chat rooms, presentations, web page generation and so on in one packages.

One technology of such a successful integration is realized in this new e- Learning software tool and discussed in the following. Due to the employed technology the usage in education is extremely flexible. It can be used for distance learning via the internet, in more traditional lessons in the classroom or for self studying at home. Traditionally, the main objective was that the students acquired knowledge. The assessment was based on testing whether students could reproduce the acquired knowledge. Presently, the main objective of teaching is the development of student skills. This means that the teacher is a coach in the process of the student development.

Generally, to make such an e – Learning software tool as convenient and flexible as possible the following points have to be taken into consideration :

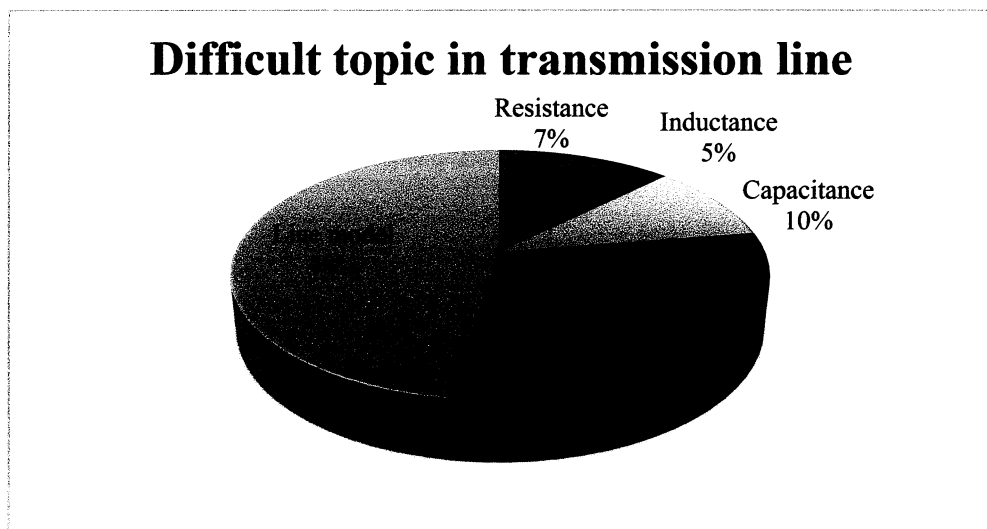
- Independence from the operating system of the computer
- Usage of a widely accepted text standard
- Programs written in an efficient language being able to solve numerical calculations within and acceptable time
- Using software standards that are widely accepted, backed by industry and long term concepts also supported in the future.



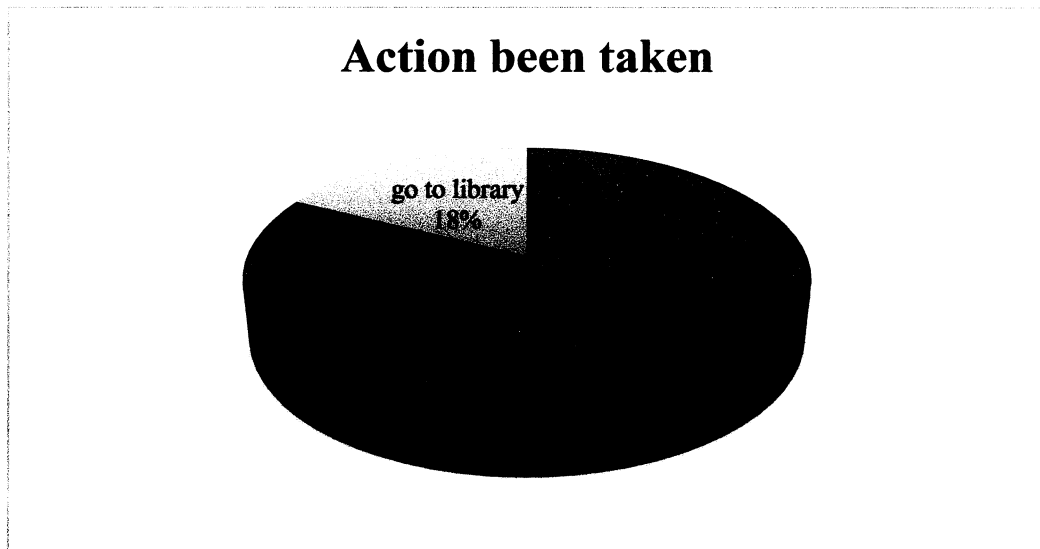
## 1.2 Problem statement

Nowadays, we can see that lesson using power point or word in the classroom sometimes makes student bored and sleepy, and this will make they lost their attention and focused. Thus, in the transmission lines subject, it is uneasy to understand the equations, calculations or equations involved. From my survey with 40 students of 4 BEKP, some conclusions can be made as follows:

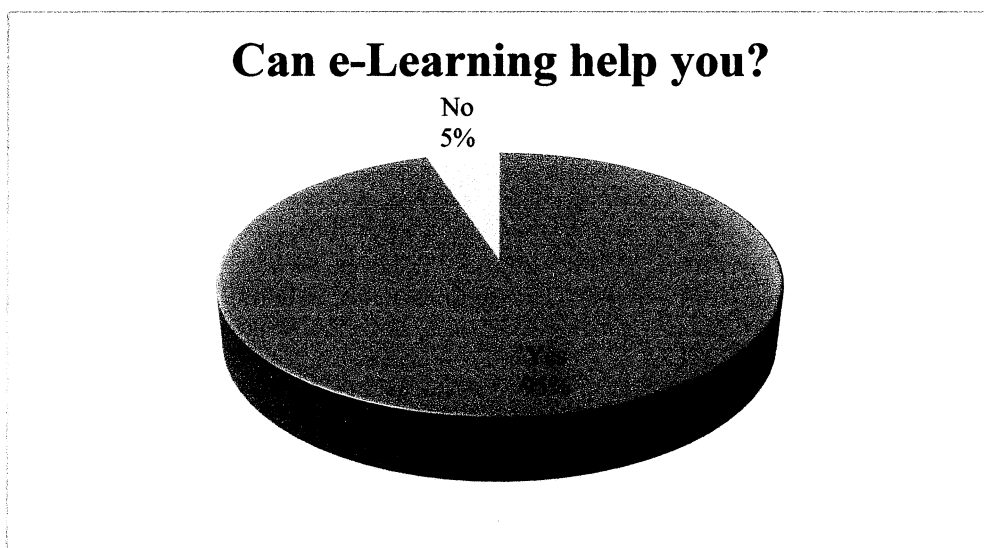
- a) 47.5% student can't recognize or remember the different length in line model. 30% students say that they are confused between lagging, leading and unity power factor.



- b) Two hours lecture in classroom is not sufficient to them so 57.5% says they need some extra class for themselves



- c) 95% agreed that studying using e-Learning will help them to improve their knowledge although most of them are not familiar with the e-Learning. Studying using e-Learning also can help to remember more what they have learned.



### **1.3 Objective of the project**

The objectives of this project are :-

1. To design an e- learning of transmission lines which the topic is transmission lines parameter and line model.
2. To help student in understanding about transmission lines and lecturer can use it as a teaching equipment.

### **1.4 Scope of the project**

In this project, it contains all the topic in transmission line which also include line model. For parameter transmission line, the topics under discussion are resistance, inductance, capacitance while for line model, we will focused on short and medium line. This education learning includes notes, quiz or tutorial and example as review. For present this project, we choose Micromedia Flash as our software.

## **1.5 Outline of the report**

This report is organized into five chapters. Chapter 1 is the project framework. This chapter discusses the introduction to the project, the objective of the project, the scope of the project, and a description of the problem and chapter organization.

Chapter 2 is a brief review of transmission lines and line model. This is followed by Chapter 3, which highlights on the methodology. Also discussed about the flow chart during this project.

In chapter 4, we will discuss about the result and discussion for each scene in this project. Chapter 5 is the conclusion of this project. This chapter also includes some suggestions for further study.

## CHAPTER 2

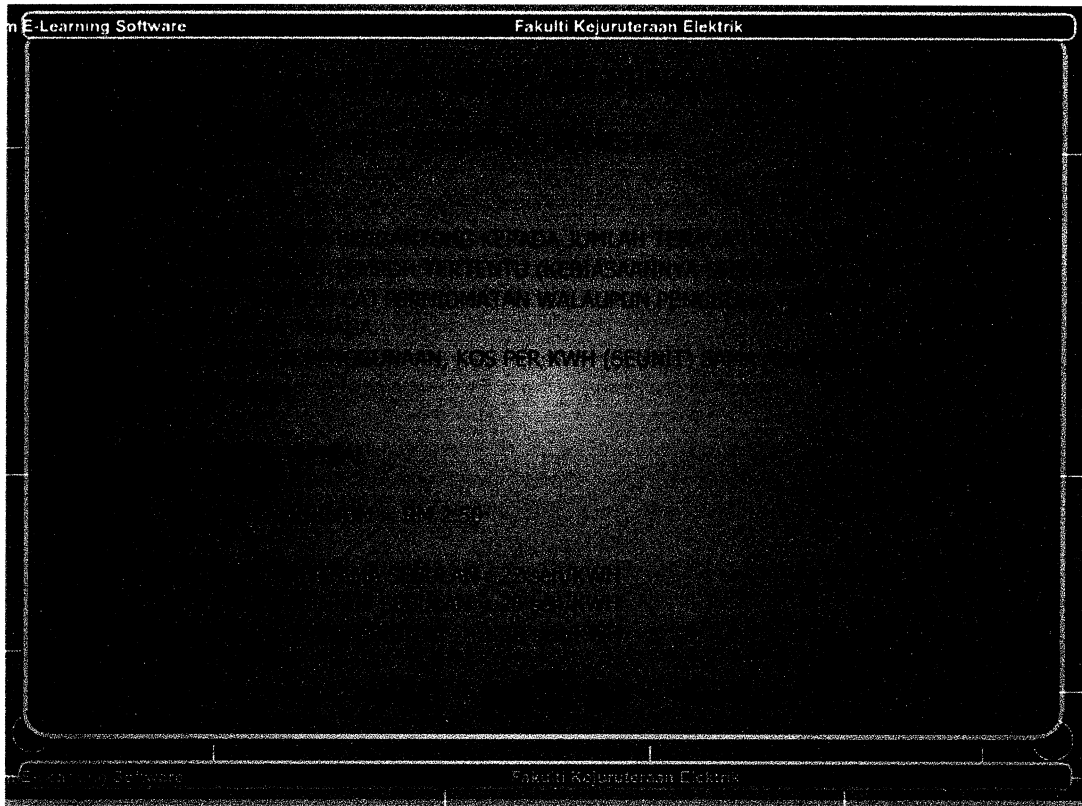
### LITERATURE REVIEW

#### 2.1 Introduction

A literature review discusses published information in a particular subject area, and sometimes information in a particular subject area within a certain time period. A literature review can be just a simple summary of the sources, but it usually has an organizational pattern and combines both summary and synthesis. A summary is a recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information. Literature reviews provide with a handy guide to a particular topic. If it has limited time to conduct research, literature reviews can give an overview or act as a stepping stone. For professionals, there are useful reports that keep up to date with what is current in the field. For scholars, the depth and breadth of the literature review emphasizes the credibility of the writer in his or her field. Literature reviews also provide a solid background for a research paper's investigation. Comprehensive knowledge of the literature of the field is essential to most research papers.

## 2.2 Existing System

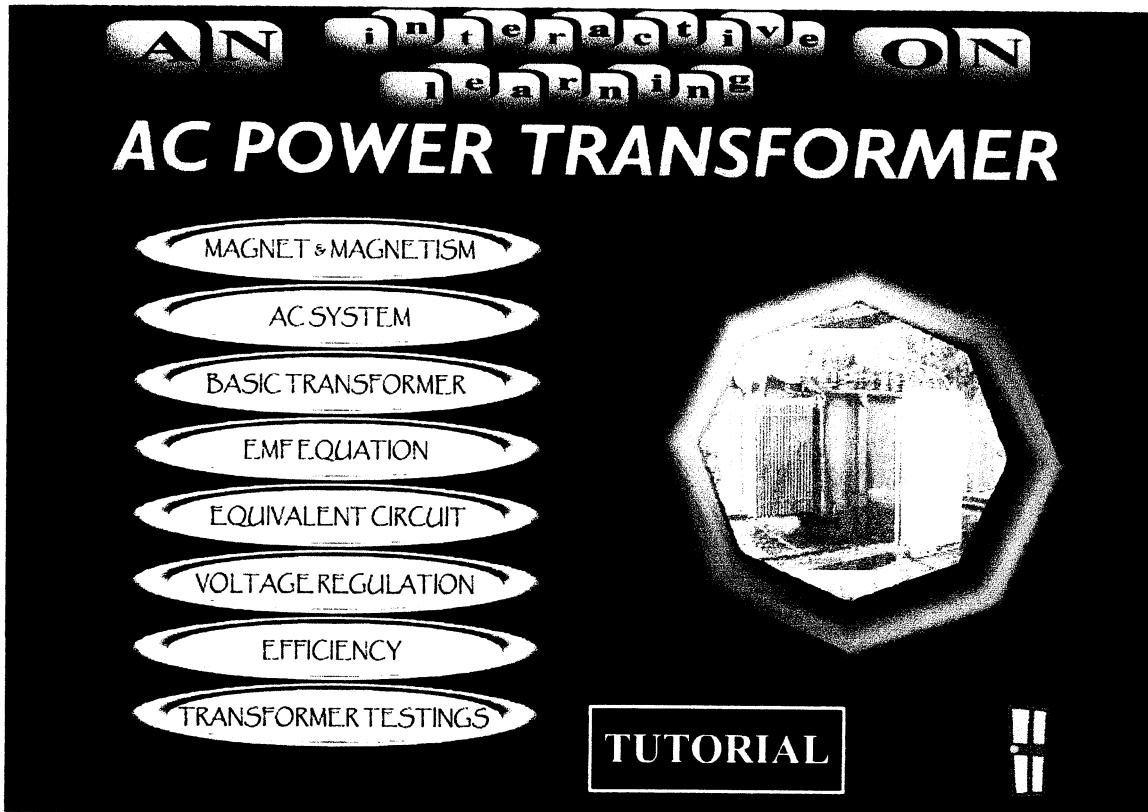
The existing example is a one of the research and references that must to make a case study in finding what are related to this project. Here have two example E-Learning in a different interface.



- **Figure 1: Kecekapan Tenaga**

<http://www.utem.edu.my/fke/Resources/Energy%20Efficiency/Energy.html>

This example includes notes or calculation how to calculated the tariff. It comes with colourful types of word to make this scene more fun and easy to remember. This example is interactive but not so attractive.



- **Figure 2: An Interactive Learning On AC Power Transformer**

<http://www.utem.edu.my/fke/Resources/i-LAPT/I-LAPT/i-lapt.swf>

This scene shows the main menu of the flash. It is very colorful and simple to understand while gain knowledge. This example also includes simple experiments to make user easy to understand the topic discuss. Besides that, this example also has the tutorial to make sure the user understand after going through this page.

### 2.3 Overhead Transmission Lines

A transmission circuits consists of conductor, insulators and usually shield wires. Transmission lines are hung overhead from a tower usually made of steel, wood or reinforced concrete with its own right of way. Steel tower may be single circuit or double circuit designs.

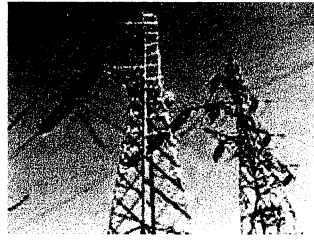
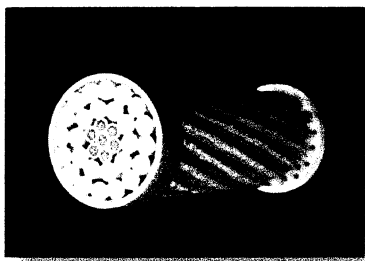


Figure 2.1: Tower transmission lines

The selection of an economical voltage level for the transmission line is based on the amount of power and the distance of transmission.

The most commonly used conductor materials for high voltage transmission lines are ACSR (aluminium conductor steel reinforced), AAC (all aluminium conductor), AAAC (all aluminium alloy conductor) and ACAR (aluminium conductor alloy reinforced)



ACSR



AAAC



AAC



ACAR

Figure 2.2: Conductor type