

# **INTERACTIVE LEARNING SOFTWARE FOR COMMUNICATION ENGINEERING SUBJECT**

**Thesis is submitted in partial fulfillment of the requirement for the  
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## **ABSTRACT**

Engineering subjects are usually considered as difficult subjects in the university. Hence, various interesting and efficient learning methods can be implemented to increase the students' understanding. This project highlights an interactive learning system for electromagnetic and communication subjects using MATLAB programs and its graphical user interface (GUI). The system needs the user to enter appropriate parameters into blank boxes in the GUI. Then, user can obtain the result by clicking the answer button. The designed program offers varieties of engineering problems such as propagation of waves, electric field intensity, plotting electric field, dot and cross product of vectors for electromagnetic part. While for communication part consists of High Frequency (HF) analysis and digital modulation. In digital modulation part, user can generate and observe Amplitude-Shift Keying (ASK) signal, Frequency-Shift Keying (FSK) signal and other digital signals. The designed programs are user-friendly and have interactive tutorials and they can be used as a powerful tool for improving the teaching process. The way of learning will become more efficient and more interesting.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 INTERACTIVE LEARNING SOFTWARE**

Interactive learning software or educational software is computer software, which the primary purpose is teaching or self learning. There are so many major types of this kind of software. It has been used for children's learning and home learning which aimed primarily at the home education of younger children. Computer games with learning value developed for adults or older children have potential learning implications allowing users to explore a variety of social, historical and economic processes. Learning software also has been widely used for edutainment, assessment software, corporate training, reference software and courseware [1].

The characteristics of a set of software tools as developed for courseware are exposed in this project. This package is designed for communication engineering students in order to facilitate the study of applied electromagnetism and communication concepts. The programs are made under a Matlab environment, provides great capabilities for graphical display in one or more windows containing controls, called components that enable a user to perform interactive tasks. The user does not have to create a script or type commands at the command line to accomplish the tasks and need not to understand the details of how the tasks are performed [2].