电子科技大学格拉斯哥海南学院

UOG-UESTC Joint School of UESTC

标准实验报告

Lab Report

(实验) 课程名称: 信号与系统

(LAB) Course Name: Signals and Systems

电子科技大学教务处制表

Student Name:	白子鹤	**Student No.:**	202330090206
Instructor:	邬震宇	**Date:**	2025/3/22
Location:	Public Lab 414		

1 Laboratory Name

Signals and Systems

2 Project Name

Represent signals using MATLAB

3 lab Hours

4 hours

4 Theoretical Background

1. The basic concepts of signals and systems arise in a variety of contexts, from engineering design to financial analysis. In this lab1, you will learn how to represent, manipulate, and analyze basic signals and systems in MATLAB.
2. Some basic MATLAB commands for representing signals include: zeros, ones, cos, sin, exp, real, imag, abs, angle, linspace, plot, stem, subplot, xlabel, ylabel, title.
3. Some useful commands in Symbolic Math Toolbox are as: sym, subs, ezplot.

5 Objectives

1. Familiarize with some basic MATLAB commands to represent and plot continuous-time and discrete-time signals.
2. Use MATLAB to perform operations on signals, including transformations.
3. Use MATLAB to analyze signal periodicity.
4. Use MATLAB to calculate signal energy and power.

6 Description

The following exercises are from the book, "John R.Buck, Michael M. Daniel, Andrew C. Singer. Computer Exploration in Signals and Systems ——Using MATLAB."

7 Required Equipment

Computer, MATLAB

8 Procedure, Data Analysis, Results, and Conclusion

8.1 1.2 (d)

8.1.1 Codes

```
t = linspace(-5,5,1000);
x = exp(-t).*cos(2*pi*t);
plot(t,x,'LineWidth',1.5);
grid on;
xlabel('t');
ylabel('x(t)');
title('x(t)=e^{-t}cos(2\pit)');
```

8.1.2 Figure

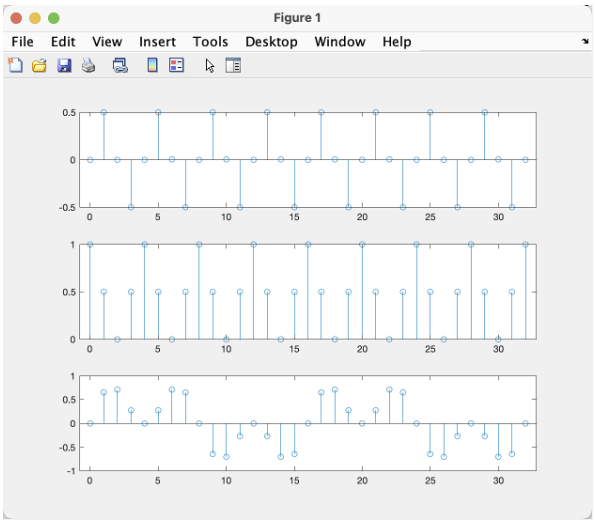

Figure 1: 1.2 (d)

8.1.3 Explanations

Add your content here.

9 Summary and Comments

After completing this experiment,

10 Suggestions for This Experiment

None.

Score:

Instructor: