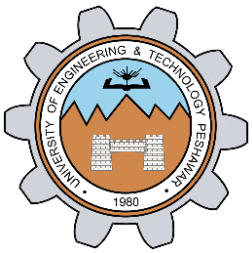
PROPERTIES OF CONTINUOUS TIME FOURIER SERIES

LAB # 11



Spring 2023

CSE301L Signals & Systems Lab

Submitted by: **Ali Asghar**

Registration No. : **21PWCSE2059**

Class Section: **C**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Submitted to:

Engr. Sumayyea Salahuddin

Date:

June 13, 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Lab Objective(s):

Objectives of this Lab are;

- Properties of CT Fourier Series

    a) Linearity
    b) Time Shifting
    c) Time Scaling
    d) Time Reversal

Task # 01:

Given the signal x(t) with ak's

a) Plot the time reverse version of the signal x(-t) directly,
b) Plot FS coefficients a-k of time reversed signal,
c) Plot the reconstructed time reversed signal using FS coefficients a-k

Hint: use bk = fliplr(ak); for flipping the ak'

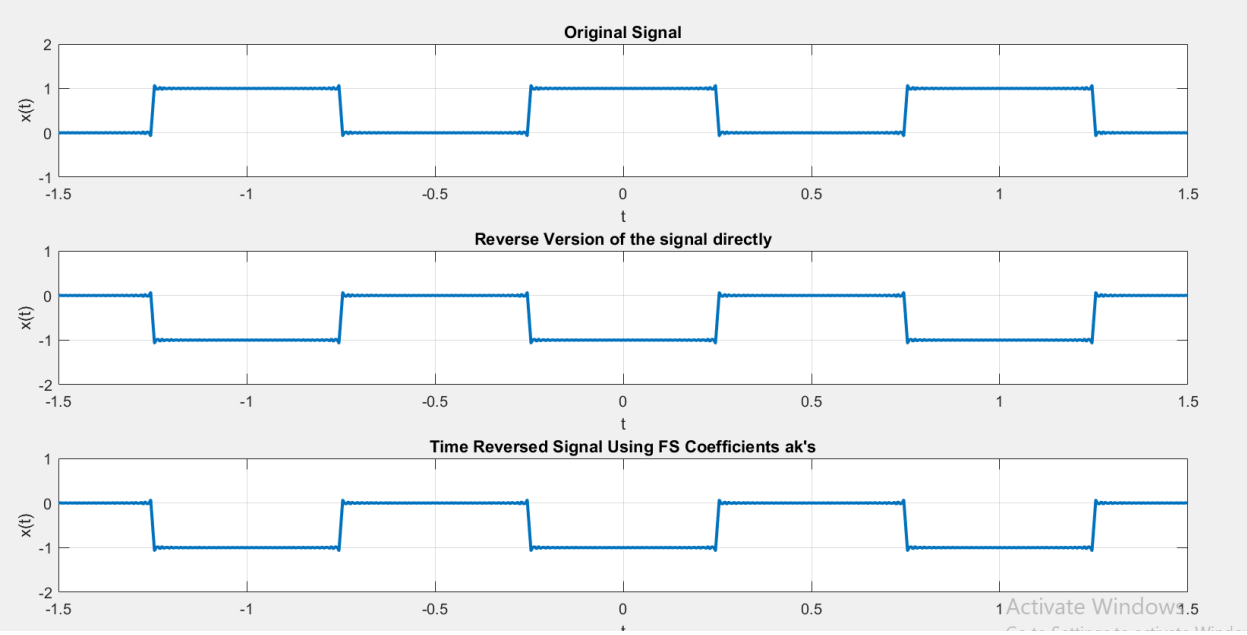
Problem Analysis:

To observe fourier properties.

Algorithm:

- Write code
- Execute Code
- Record Results

Output / Graphs / Plots / Results:



Discussion and Conclusion:
We analyzed properties

Task # 02:

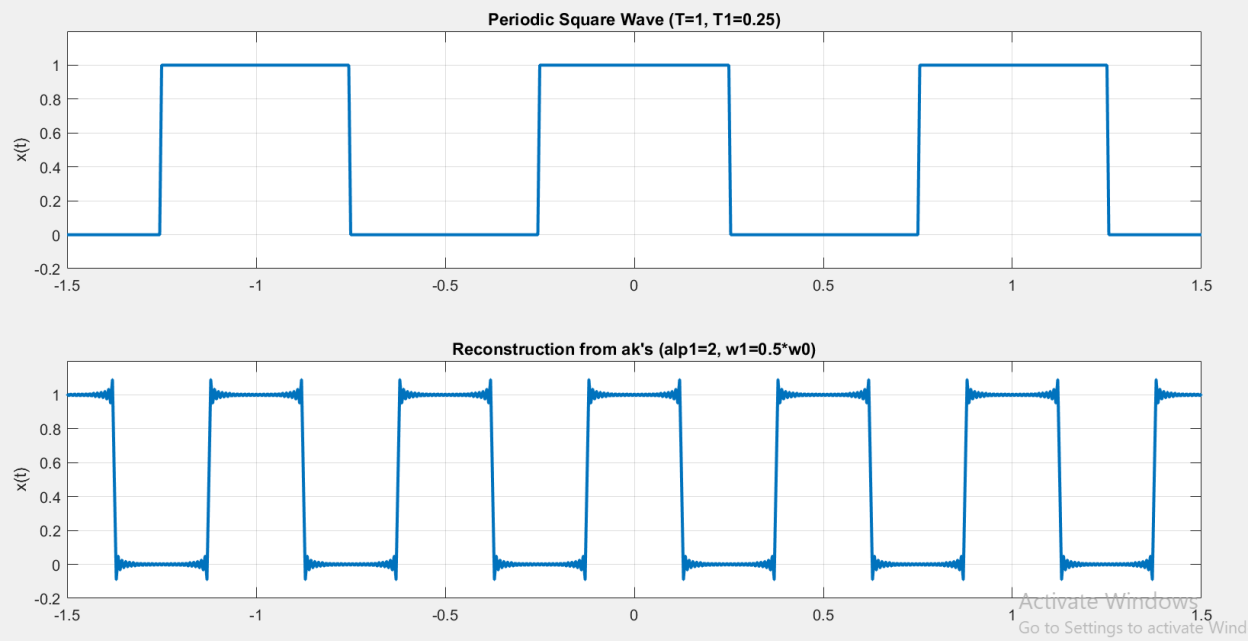
Given the periodic square wave x(t) with T = 1 & T1 = 0.25, rewrite the above code for time scaling when value of alpha is 2 i.e. x(αt) = x(2t).

Problem Analysis:
To observe fourier properties.

Algorithm:

- Write code
- Execute Code
- Record Results

Output / Graphs / Plots / Results:



Discussion and Conclusion:

In this lab we learnt about the properties of CT Fourier Series i.e. Linearity, Time Scaling, Time Shifting and Time Reversal.