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***Registration No:*** *18BIS0043*

***Subject Code:*** *ECE2023*

***Slot:*** *L15 + L16*

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***Lab Assesment - 5***

# *Analog – to – Digital Converter*

***Aim:***

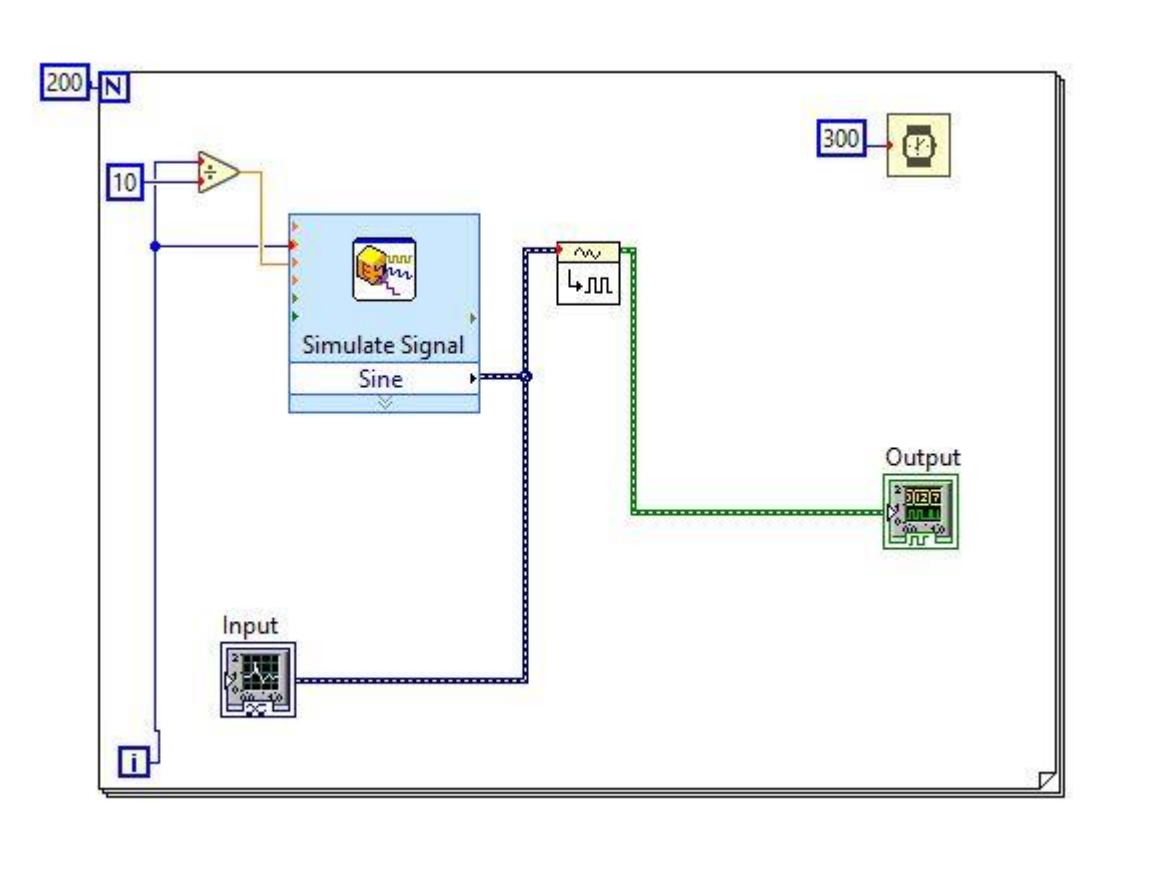
*To convert the given analog signal into a digital signal. Show both the input and the output graphs*

***Abstract**:*

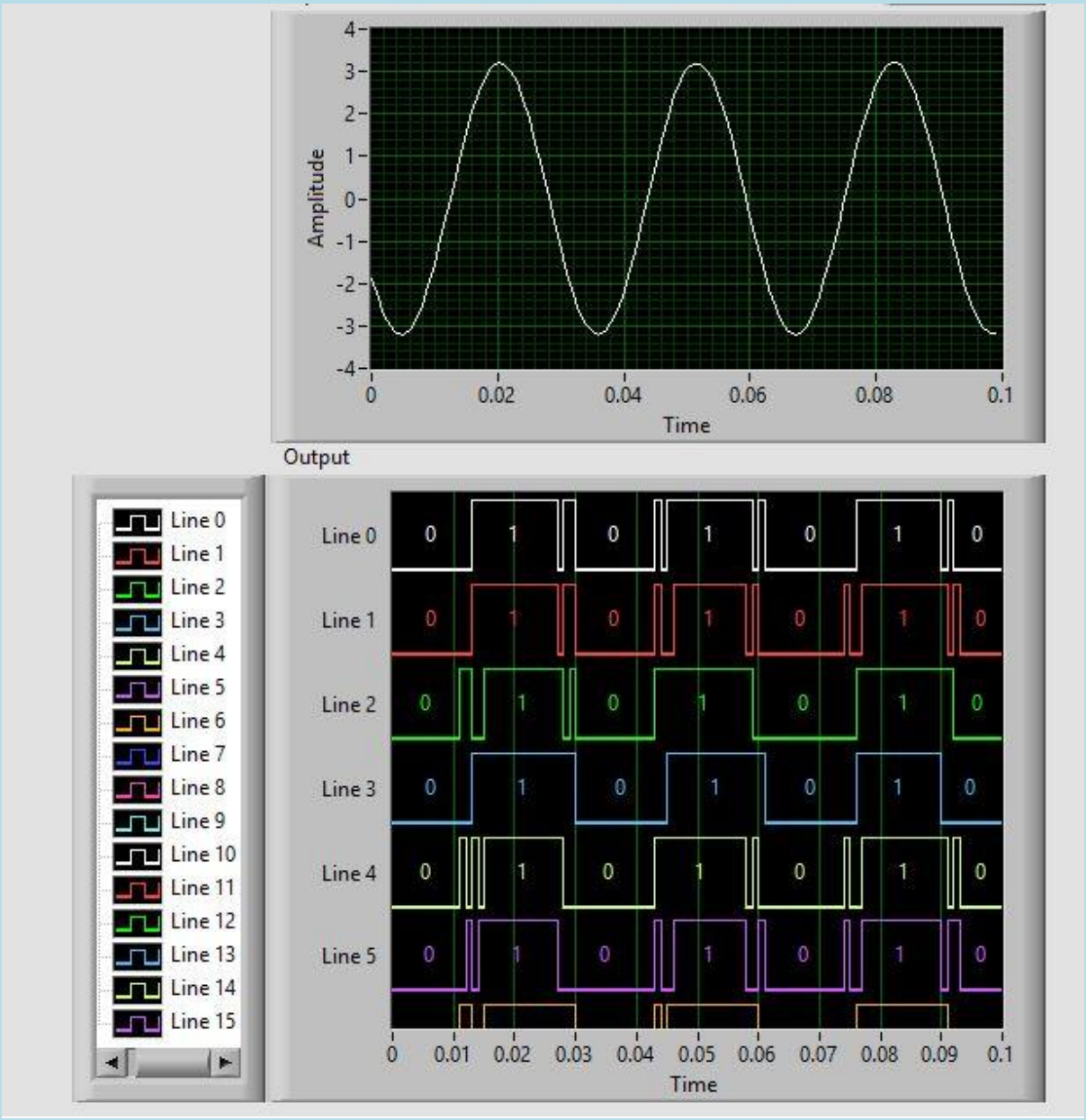
*Digital signals are easier to condition, easier for processing and safer for transmission to reduce the data loss. This makes it more of a requirement to make the analog signals to digital. This experiment shows various signals being converted to digital using a simple ADC (Analog to Digital Converter) from LabView.*

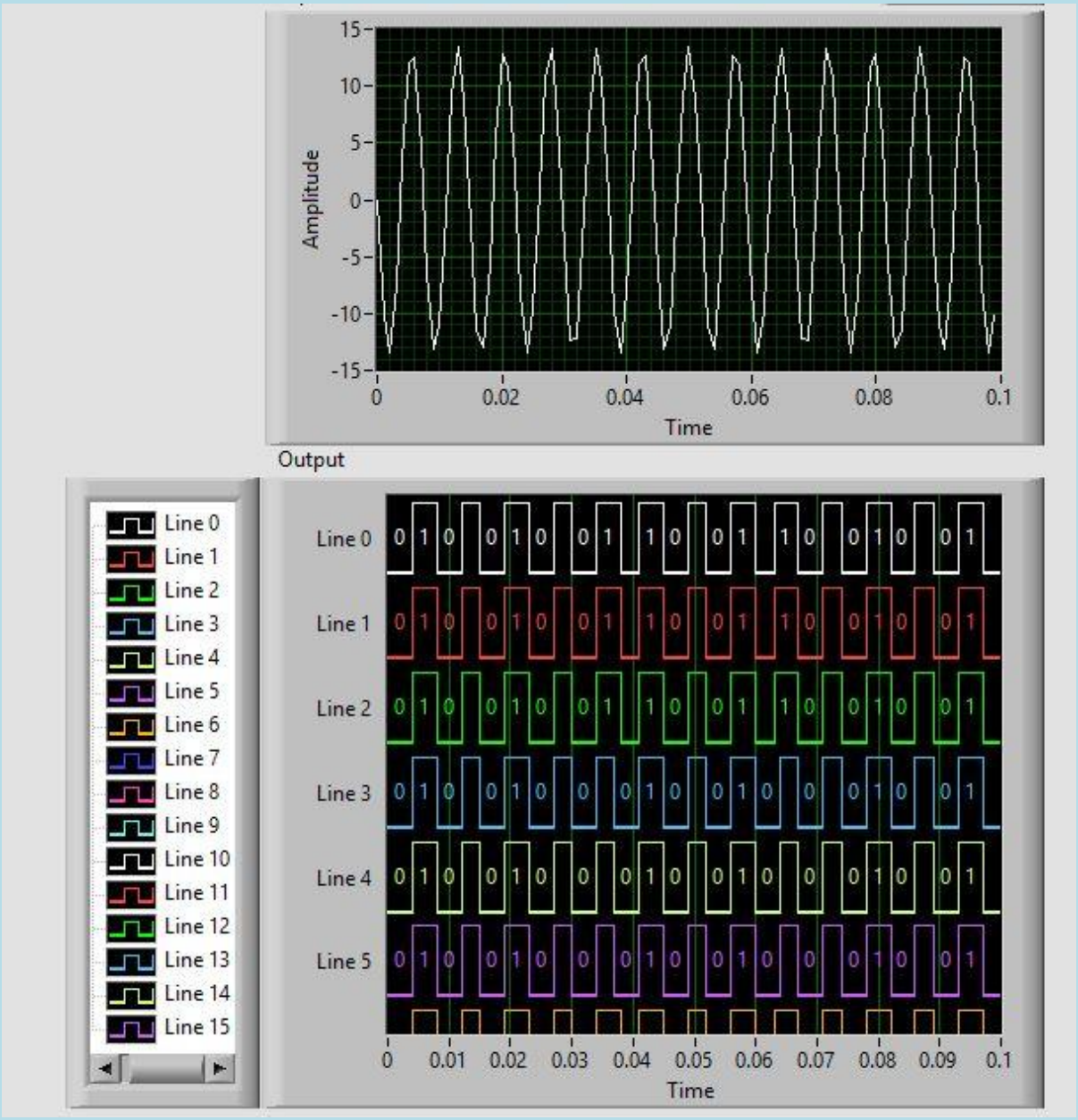
*Sampling rate of the input analog signal plays a major role in the conversion of analog to digital conversion and some of the problems I encountered, during the conversion, are also discussed below.*

***Circuit Diagram**:*

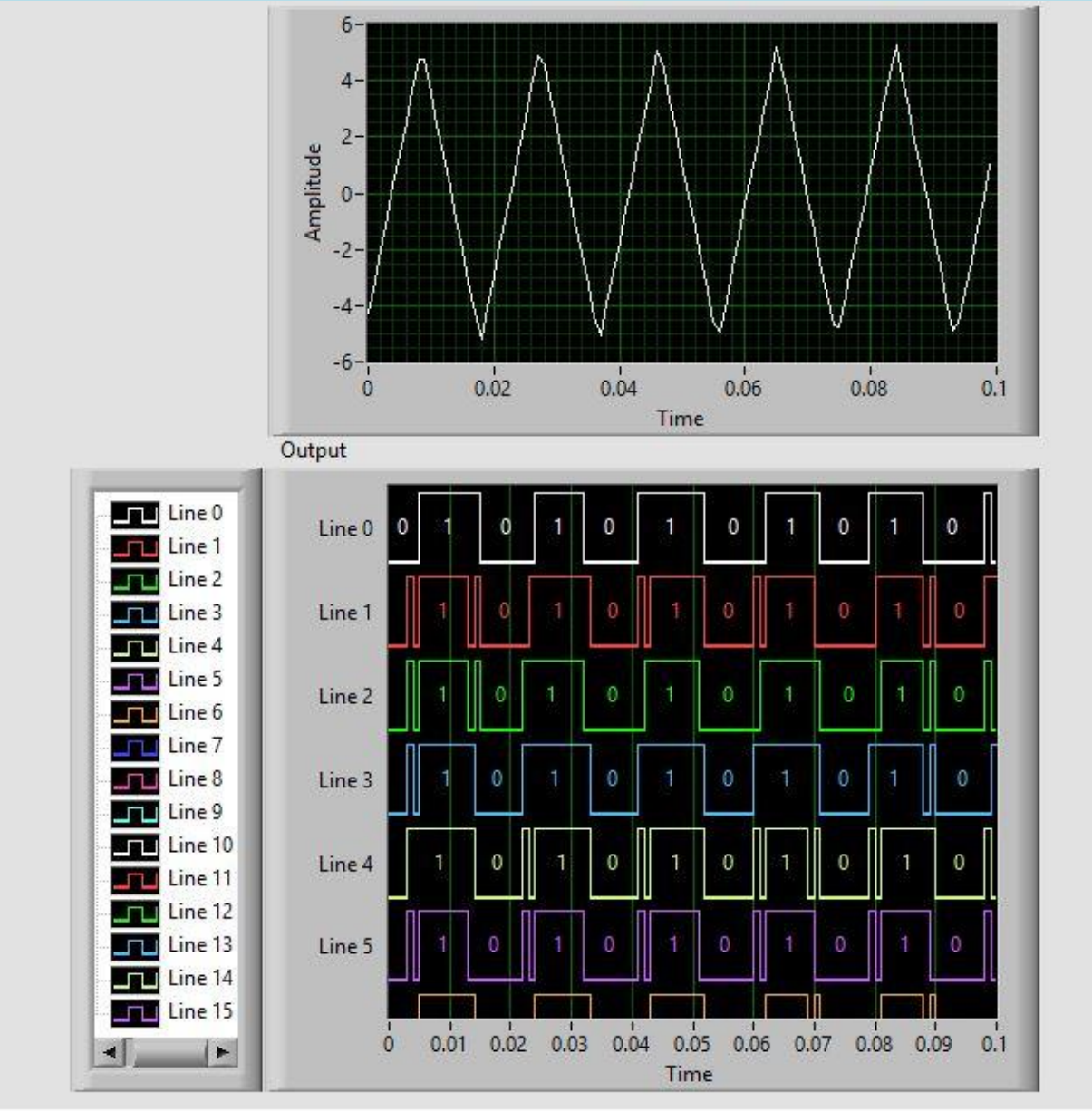


## ***Conversion 1*: Sine wave**

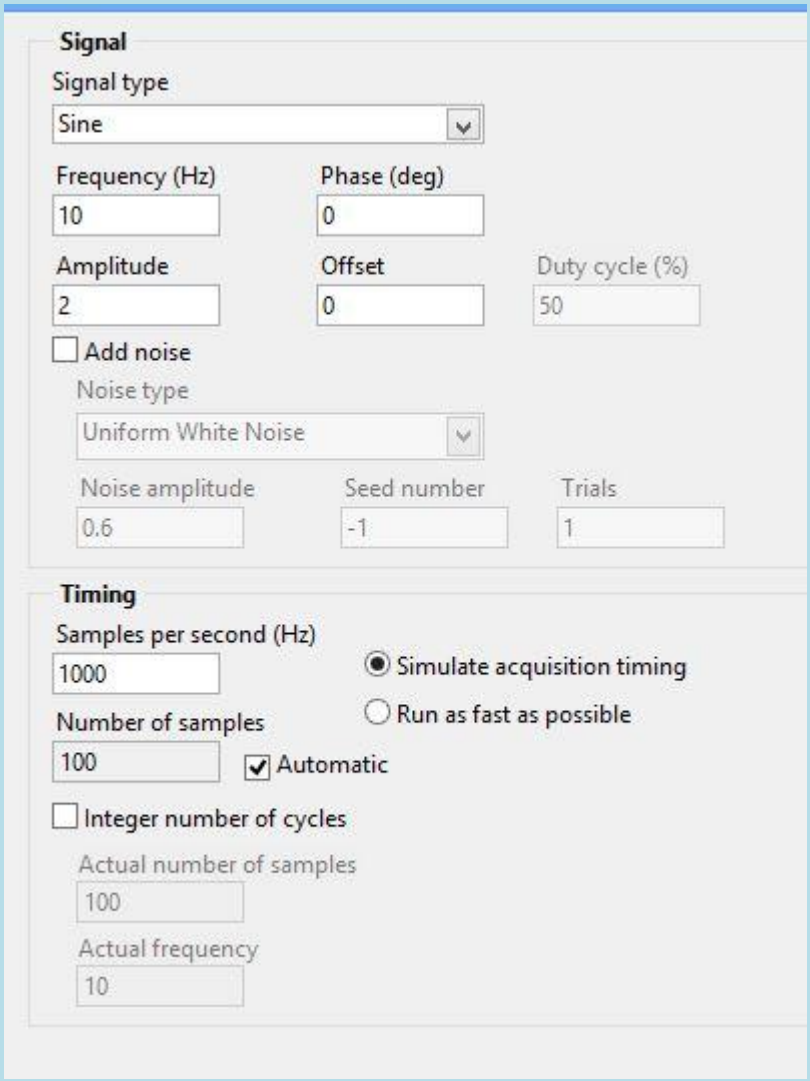



15
10
5
0
-5
-10
-15
Amplitude
0
0.02
0.04
0.06
0.08
0.1
Time
Output
Line 0
Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
Line 7
Line 8
Line 9
Line 10
Line 11
Line 12
Line 13
Line 14
Line 15
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1
Time

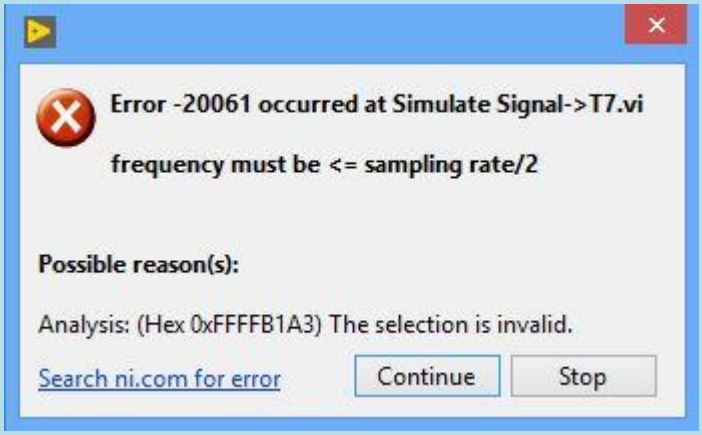
## ***Conversion 2: Triangular wave***



## ***Changing the sampling rate:***



***Error encountered**:*




*On reducing the sampling rate to 20 from 1000, it violates the Nyquist rule of sampling. The sampling rate of the digital converter should always be greater than or equal to the frequency of the wave. Otherwise the Nyquist condition is violated and the program stops to work.*