



# UNIVERSITY OF INFORMATION TECHNOLOGY AND SCIENCES (UITS)

LAB REPORT : 7

ECE-252 : ELECTRONIC DEVICES AND CIRCUITS LAB

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## Oscilloscope

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*Submitted To:*

Priti Bose  
Lecturer,  
Department of IT, UITS  
Email:  
priti.bose@uits.edu.bd

*Submitted By:*

Name: Nazmul Zaman  
Student ID:2014755055  
Department of IT UITS

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## Contents

<b>1</b>	<b>Abstract</b>	<b>2</b>
<b>2</b>	<b>Objectives</b>	<b>2</b>
<b>3</b>	<b>Theory</b>	<b>2</b>
3.1	Definition of Oscilloscope . . . . .	2
3.2	The purpose of an oscilloscope . . . . .	3
<b>4</b>	<b>Working Procedure</b>	<b>3</b>
4.1	How to measuring by oscilloscope . . . . .	3
<b>5</b>	<b>Conclusion</b>	<b>4</b>
<b>6</b>	<b>reference</b>	<b>4</b>

# 1 Abstract

Electronic components regulate the movement of electrical currents to process information and operate systems. An electronic circuit is made up of individual electronic components including resistors, transistors, capacitors, inductors, and diodes that are connected by conductive wires or traces.

# 2 Objectives

I'll learn more about the oscilloscope through this activity.  
And operating an oscilloscope.

# 3 Theory

## 3.1 Definition of Oscilloscope

An oscilloscope is a type of electronic test instrument that graphically displays varying electrical voltages as a two-dimensional plot of one or more signals as a function of time.



Figure 1:

### 3.2 The purpose of an oscilloscope

Oscilloscopes are frequently used in the design, manufacture, and maintenance of electronic equipment. Engineers use oscilloscopes to quickly and reliably monitor electrical phenomena and solve measurement issues in order to validate their designs or ensure that a sensor is working properly.

## 4 Working Procedure

There are three types of oscilloscope systems: vertical, horizontal, and trigger. These systems work together to offer information about the electrical signal so that the oscilloscope can accurately reconstruct it. The block diagram of an oscilloscope is shown below.

### 4.1 How to measuring by oscilloscope

Simply put, an oscilloscope measures voltage waveforms. Voltage is displayed vertically on the Y axis of an oscilloscope, while time is displayed horizontally on the X axis. The Z axis is another name for the display's brightness or intensity. The resulting graph contains a wealth of information regarding a signal, including:

- A signal's time and voltage values
- An oscillating signal's frequency
- The frequency at which a certain component of the signal occurs relative to other portions
- Whether or not a faulty component is distorting the signal;
- How much of a signal is direct current (DC) or alternating current (AC);
- The amount of noise in the signal; and
- Whether or not the noise changes over time.

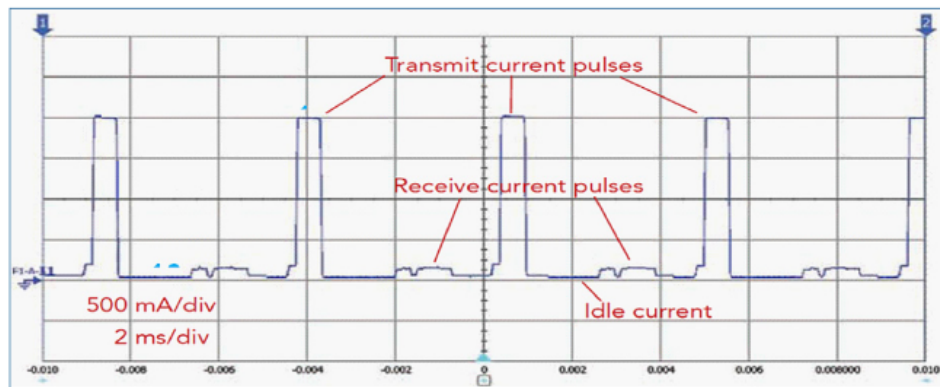


Figure 2:

## 5 Conclusion

In this lab, I learned about oscilloscopes and how they function.

## 6 reference

Tektronix<https://www.tek.com>

<https://www.istockphoto.com/photos/oscilloscope>.