

**Course/Topic:** EMI/ Transducers

**Course Outcome:**

**Activity Chosen:** Animation Video

**Faculty:** K. Venkanna Naidu

Animation Video:

Over the past few years, videos are being widely used in classrooms for supporting a teacher's curriculum and helping students learn the material faster than ever. Research shows that 94% of the teachers have effectively used animation videos during the academic year and they have found video learning quite effective, it is even better than teaching students through traditional text-books. Majority of part of the human brain is devoted towards processing the visual information. Brain responds to visuals fast, better than text or any other kind of learning material. Remembering stuff from the picture is retained in the mind for a longer time. Through videos, students get to process information fast.



### **Transducer Animation Video by K.Venkanna Naidu**

A transducer is an electronic device that converts energy from one form to another. The process of converting energy from one form to another is known as transduction.

Transducer: Some common examples of transducers include loudspeakers, microphones, thermometers and LEDs.

Why do we need a transducer?

To determine the exact magnitude of physical forces such as temperature and pressure is difficult. But, if these physical forces are converted into an electrical signal, then their values can be easily determined using a meter. The primary function of transducers is to convert a physical force into an electrical signal so that it can be easily handled and transmitted for measurement.

Advantages of converting a physical quantity into an electrical signal

Here, we have listed the various advantages of converting a physical quantity into an electrical signal:

Electrical signals are easily transmitted and processed for measurement, Electrical signals process less friction error. Small power is needed to control the electrical systems.

Amplification and attenuation of electrical signals are easy. The measuring instrument used for measuring the electrical signal is very compact and accurate.

Parts of Transducer: A transducer consists of the following two important parts:

Sensing element, Transduction element, Transducers have other vital parts such as signal processing equipment, amplifiers and power supplies.

Sensing Element: It is the part of a transducer that responds to the physical sensation. The response of the sensing element depends on the physical phenomenon.

Transduction Element

The transduction element of the transducer converts the output of the sensing element into an electrical signal. The transduction element is also called the secondary transducer.

Types of Transducers: There are two types of transducers, as follows:

Input Transducer, Output Transducer

What is an Input Transducer?

An input transducer or a sensor takes in physical energy and converts it into an electrical signal that can be read. A microphone, for example, converts physical sound waves into an electrical signal that can be transferred through wires.

Transduction

What is an Output Transducer?

An output transducer, or an actuator, takes in electrical signals and converts them into other forms of energy. A lamp converts electricity into light and a motor, on the other hand, converts electricity into motion.