ACOUSTICS

BY

MARIASTEFFI.S

ASSISTANT PROFESSOR OF PHYSCIS

CPA COLLEGE, BODINAYAKANUR

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- ✓ What is Acoustics?
- ✓ How is sound produced?
- ✓ Application
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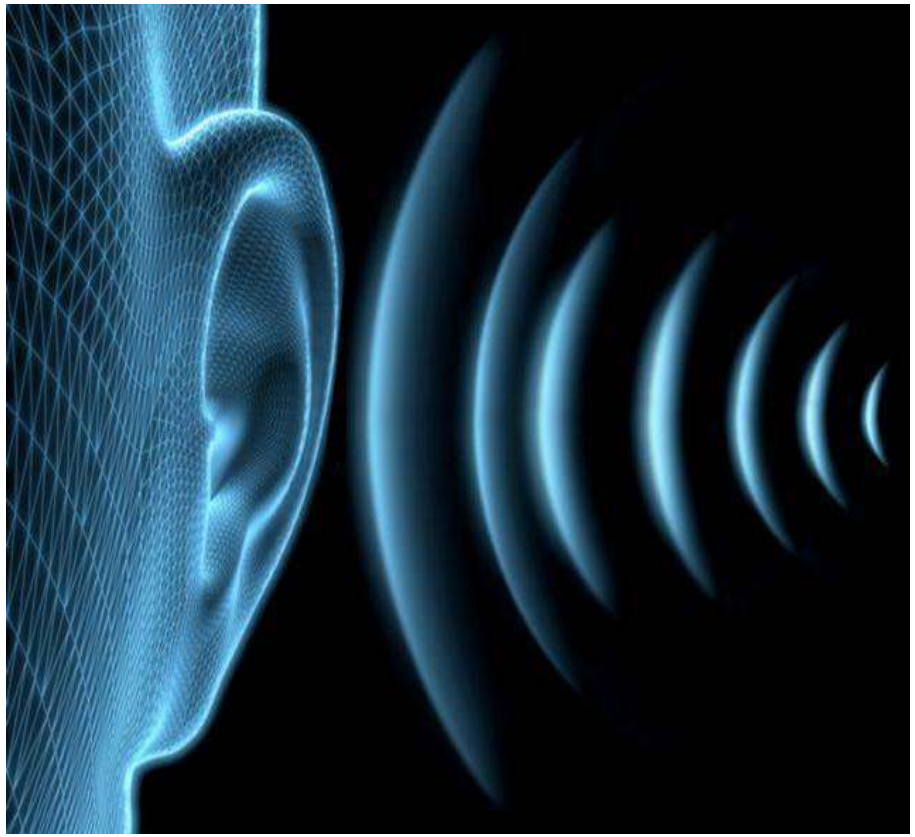
INTRODUCTION

- ✓ Acoustics is defined as the science of sound.
- ✓ Sound as a mechanical disturbance in an elastic and inertial medium.
- ✓ These disturbances or oscillations of air pressure are converted into mechanical waves which excite the auditory mechanism resulting in a perception.

WHAT IS ACOUSTICS?

- ✓ Acoustics is the science concerned with the production, control, transmission, reception and effects of sound.
- ✓ The term is derived from the Greek **akoustos** which meaning is **heard**.



How is sound produced?

- Sounds are caused by vibrations.
- Vibrations are considered as a disturbance that travels through a medium.
- This vibratory motion causes energy to transfer to our ears and is interpreted by our brain.

HOW IS SOUND PRODUCED?

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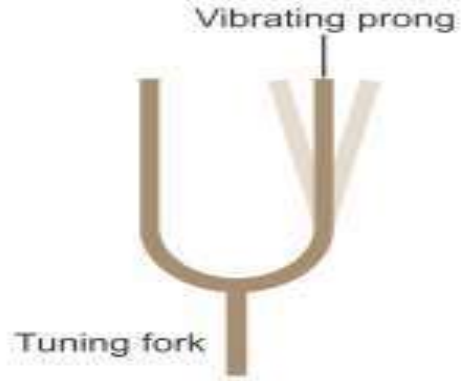
Sound

Sound is a form of energy. It is carried in the form of waves.

Necessary condition to produce sound = vibration of a particle
Vibration : To and fro motion of a particle about its mean position.

When we hit the drum, membrane of drum vibrates producing sound

When we play a guitar, the string on it makes to and fro motion and produces sound



Sound produced by vibrating prong of tuning fork

HOW IS SOUND PRODUCED?

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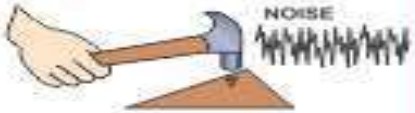
Types of Sound

Music

- produced by periodic vibrations
- has regular wave pattern
- pleasing to ears
- can be reproduced.
- e.g. sound produced by music instruments

Noise

- produced by irregular vibrations
- has irregular wave pattern.
- irritating to ears.
- cannot be reproduced.
- e.g. Sound produced by moving bus, train.



Musical Instruments

Wind instrument

One end of the instrument is blown, air inside the instrument vibrates and produces sound. e.g. flute, bugle

Percussion instrument

They produce sound by being struck, shaken, scraped or clashed together. e.g. tabla, drum, gong, cymbals

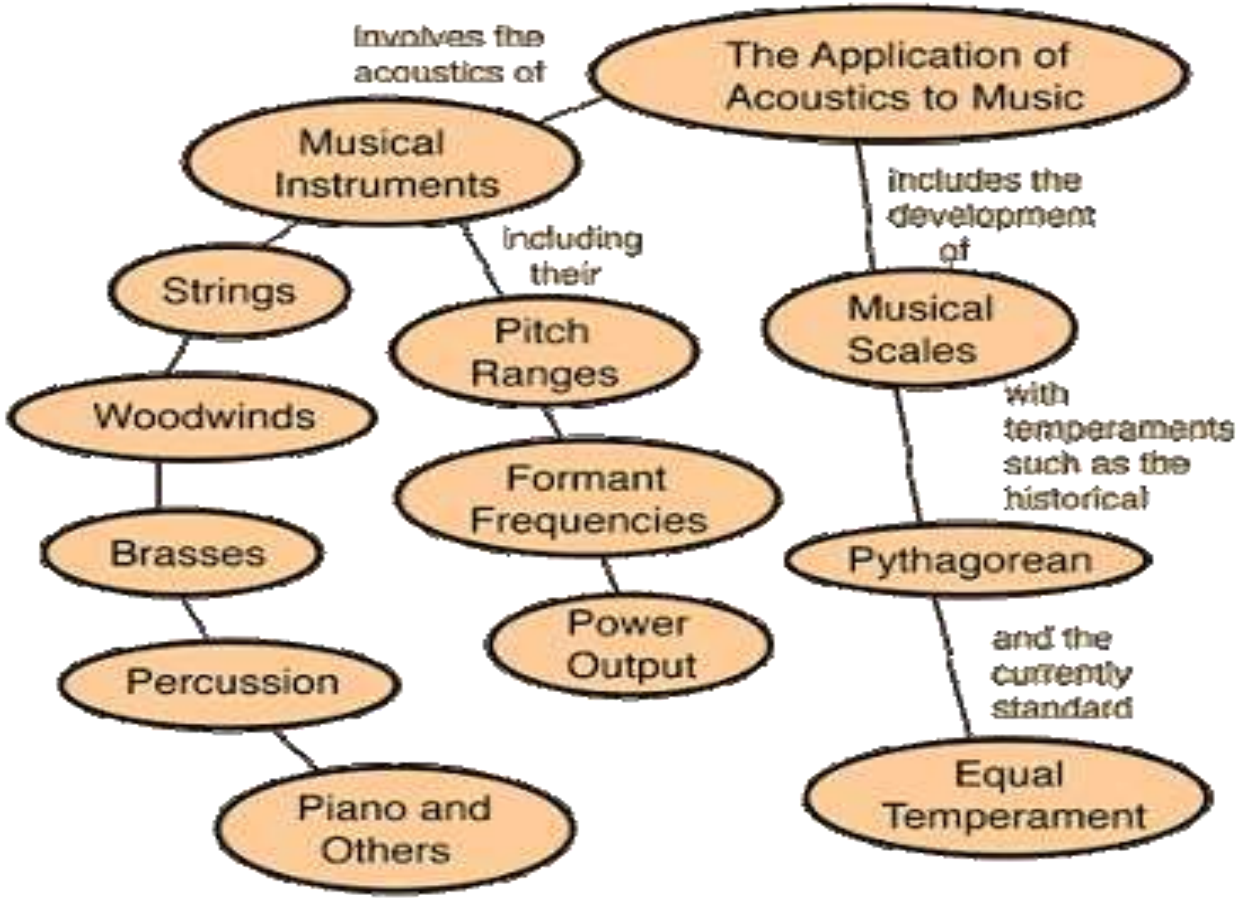
Reed instrument

They have metal reeds which produce sound when air is blown through them. e.g. harmonium, mouth organ

String instrument

When the strings are disturbed by either plucking or strumming, they vibrate and produce sound. This sound is enhanced by the hollow box, which is the body of the instrument. e.g. guitar, piano.

APPLICATIONS



CONCLUSION

From this acoustics topic, we have been known that the following topics:

- ✓ What is Acoustics?
- ✓ How is sound produced?
- ✓ Application

THANK YOU