



JECRC Foundation



**JAIPUR ENGINEERING COLLEGE
AND RESEARCH CENTRE**

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTER

Class – 3rd Year - V Semester: B.Tech. (Civil Engineering)

Subject – AIR & NOISE POLLUTION AND CONTROL

Ch – Noise pollution

Presented by – Assistant Professor Narendra Sipani

VISSION AND MISSION OF INSTITUE

Vision-

To become a renowned centre of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Mission-

M1. Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.

M2. Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.

M3. Offer opportunities for interaction between academia and industry.

M4. Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

VISSION AND MISSION OF DEPARTMENT

Vision-

To become a role model in the field of Civil Engineering for the sustainable development of the society.

Mission-

M1.To provide outcome base education.

M2.To create a learning environment conducive for achieving academic excellence.

M3.To prepare civil engineers for the society with high ethical values.

CONTENTS

1. Noise
2. Noise Pollution
3. Classification of Noise Pollution
4. Measurement of Noise
5. Noise Mitigation
6. What is Sound
7. Transmission of Sound

NOISE

- ❑ The word noise comes from the Latin word noxia meaning "injury" or "hurt" .”
- ❑ Noise is an unwanted, unpleasant and annoying sound caused by vibration of the matter.
- ❑ Vibrations impinge on the ear drum of a human or animal and setup a nervous disturbance, which we call sound.
- ❑ When the effects of sound are undesirable that it may be termed as “Noise”.
- ❑ Physically there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled as noise, music, speech etc. Noise has become a very important "stress factor" in the environment of man.



NOISE POLLUTION

- ❑ Sound that is unwanted or disrupts one's quality of life is called as noise. When there is lot of noise in the environment, it is termed as noise pollution.
- ❑ Sound becomes undesirable when it disturbs the normal activities such as working, sleeping, and during conversations.
- ❑ It is an underrated environmental problem because of the fact that we can't see, smell, or taste it.
- ❑ World Health Organization stated that "Noise must be recognized as a major threat to human well-being"

NOISE POLLUTION

- ❑ Noise pollution is a type of energy pollution in which distracting, irritating, or damaging sounds are freely audible. Noise pollution contaminants are not physical particles, but rather waves that interfere with naturally occurring waves of a similar type in the same environment.
- ❑ In the most narrow sense, sounds are considered noise pollution if they adversely affect wildlife, human activity, or are capable of damaging physical structures on a regular, repeating basis.

Classification of NOISE POLLUTION

There are 2 kinds of noise pollution:-

A. Community Noise/ Environnemental Noise (*non industrial noise pollution*).

- Air craft noise
- Roadway noise pollution
- Under water noise pollution

B. Occupational Noise(*industrial noise pollution*)

Community noise

□Community noise (also called environmental noise, residential noise or domestic noise) is defined as noise emitted from all sources, except at the industrial workplace. Main sources of community noise include road, rail and air traffic, construction and public work, and the neighborhood.

□Typical neighborhood noise comes from live or recorded music; from sporting events including motor sports; from playgrounds and car parks; and from domestic animals such as barking dogs.

Air craft Noise Pollution

Noise from planes flying over residential areas impairs people's ability to work, learn in school and sleep, and consequently also results in lowered property values in affected areas. As passenger volume increases and new and larger airports are built, noise is becoming even more of a concern.

Roadway noise pollution

Roadway noise is the collective sound energy emanating from motor vehicles. In the USA it contributes more to environmental noise exposure than any other noise source, and is constituted chiefly of engine, tire, aerodynamic and braking elements. In other Western countries as well as Lesser developed countries, roadway noise is expected to contribute a proportionately large share of the total societal noise pollution.

Under water noise pollution

UNP is intense human-generated noise in the marine environment. It is caused by use of explosives, oceanographic experiments, geophysical research, underwater construction, ship traffic, intense active sonars and air guns used for seismic surveys for oil and related activities.

Occupational Noise

The many and varied sources of noise is industrial machinery and processes include: rotors, gears, turbulent fluid flow, impact processes, electrical machines, internal combustion engines, pneumatic equipment, drilling, crushing, blasting, pumps and compressors. Furthermore, the emitted sounds are reflected from floors, ceiling and equipment.

Measurement of NOISE

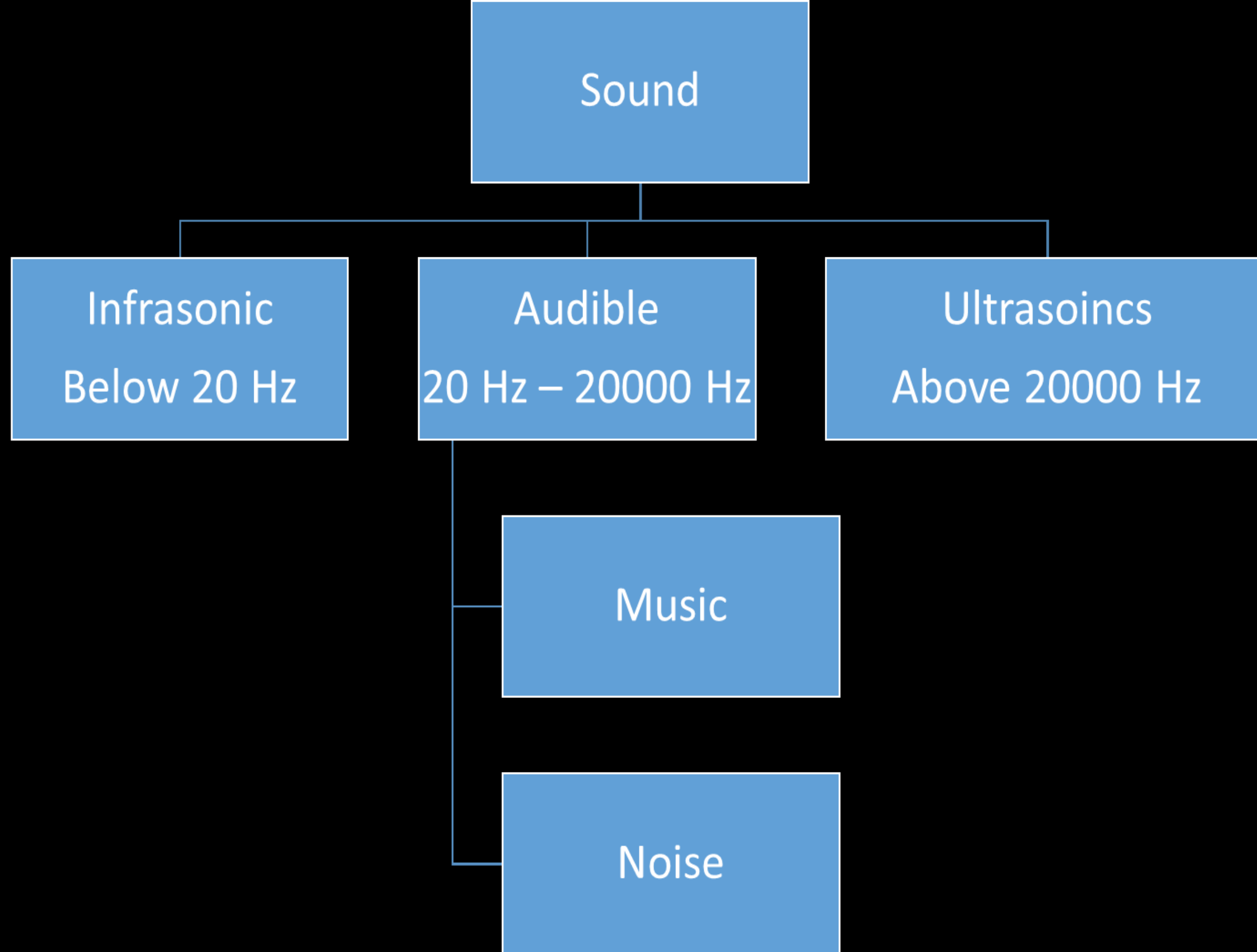
A decibel is the standard for the measurement of noise”

- 20 db is whisper.
- 40 db the noise in a quiet office.
- 60 db is normal conversation.
- 80 db is the level at which sound becomes physically painful. And can be termed as noise.

NOISE MITIGATION

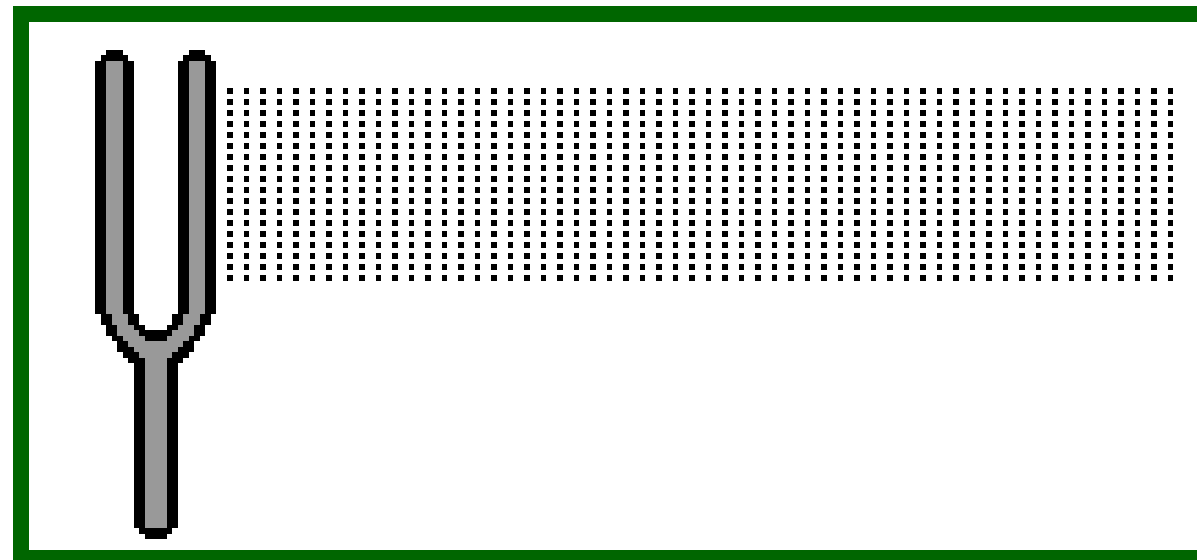
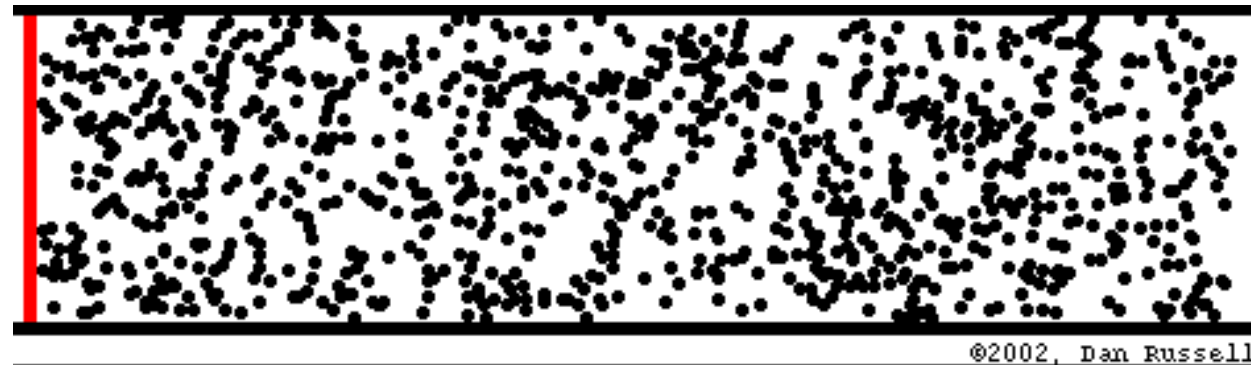
“Noise mitigation is a set of strategies to reduce noise pollution.”

- Construction of sound proof rooms for noisy machines in industries.
- Use of horns with jarring sounds to be banned. No motor vehicle should be fitted with multitonned horn giving a succession of different note or with any other sound producing device giving an unduly harsh, shrill , loud or alarming noise on other similar vehicles of such sound signals.
- Every motor vehicle shall be fitted with a device (silencer).
- Noise producing industries, aerodromes, and railway stations to be shifted away from the inhabited areas.
- Proper law should be enforced to check the misuse of loudspeakers and public announcements systems. Loud speakers are banned from 10pm to 6am.
- Growing green plants/trees along roadside to reduce noise pollution as they absorb sound.



What is SOUND?

- ❑ Sound can be defined in two ways. [Physical or psychophysical]
- ❑ Sound can be defined as a *wave motion in air or other elastic media.*
- ❑ Or as excitation of the hearing mechanism that results in the *perception* of sound.



Transmission of Sound

- ❑ Requires a medium with elasticity and inertia (air, water, steel, etc.)
- ❑ Movements of air molecules result in the variation of sound pressure causing the propagation of a sound wave.
- ❑ Energy in the form of sound is produced when a vibrating surface or object is contact with the air.

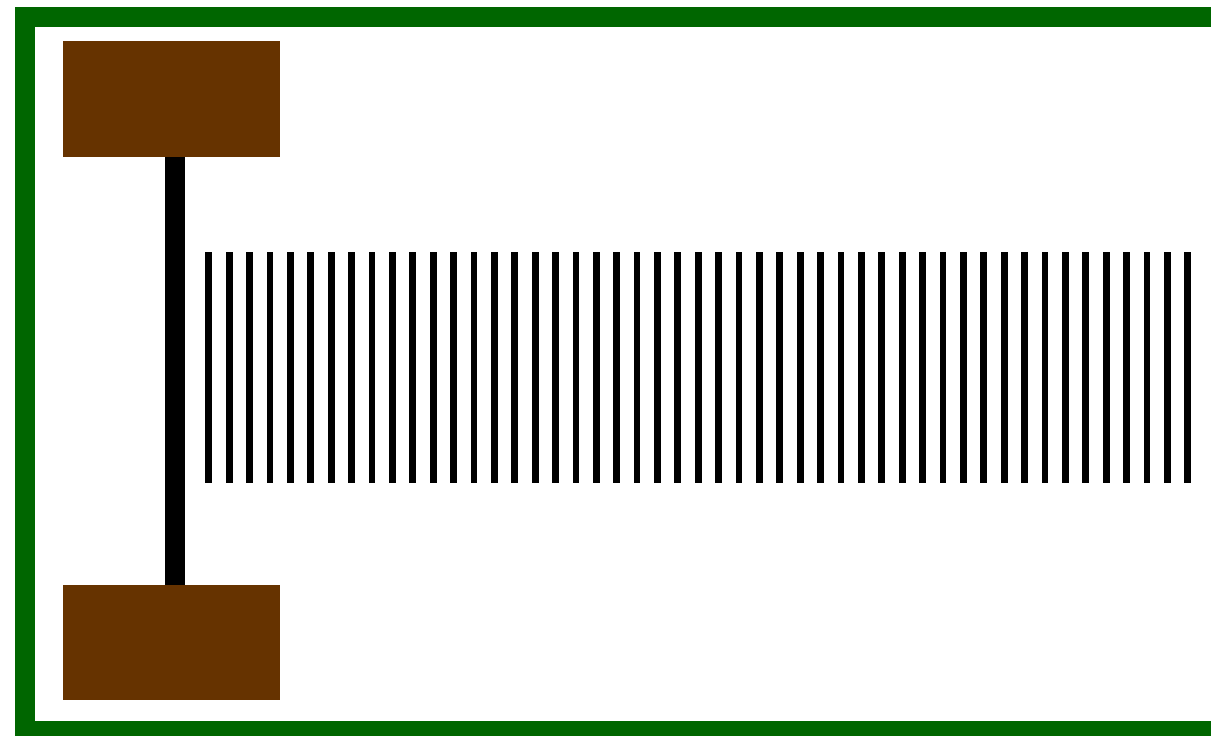
❑ Sources of sound

I. Vocal

II. Plucked strings

III. Air column

IV. Vibrating plate



BASIC ACOUSTICAL PARAMETERS

- Sound pressure
- sound pressure level
- Sound Power
- Sound Power level and
- sound intensity

WE WILL CONTINUE IN NEXT CLASS....

REFERENCES/BIBLIOGRAPHY



JECRC Foundation



**JAIPUR ENGINEERING COLLEGE
AND RESEARCH CENTRE**

*Thank
you!*

STAY HOME, STAY SAFE