



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35  
An Autonomous Institution**

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## **DEPARTMENT OF AGRICULTURAL ENGINEERING**

### **19AGE307-ERGONOMICS OF FARM MACHINERY AND IMPLEMENTS**

#### **UNIT II - ANTHROPOMETRY**

#### **TOPIC V :FACTORS THAT CAUSE ANTHROPOMETRIC DATA VARIATIONS**



## FACTORS THAT CAUSE ANTHROPOMETRIC DATA VARIATIONS

- Anthropometric data required for the design of a good working system.
- As we know, in making measurements there are variables that influence this measurement.
- For example, in a work environment situation. The physical environment can also affect workers both directly and indirectly.
- Physical environment are all circumstances that are around the workplace.



# FACTORS THAT CAUSE VARIATIONS IN ANTHROPOMETRIC DATA

- Age
- Gender
- Ethnicity/Racial
- Body Posture and Position



# AGE

- The first factor is age. In each person's measurement, the age of the person must be known.
- This can happen because basically, every age has different body dimensions.
- The dimensions of the human body will grow and grow with age as it grows from the beginning of its birth to around 20 years for men and 17 years for women.
- Whereas there will be shrinkage when you are 50 and above. Especially humans experience 5 phases of growth:

Toddler  
Child  
Teenagers  
Adult  
Elderly



# GENDER

- Besides using age as a variation of data, gender also determines other variations.
- Basically, the dimensions of the male body size is generally larger than women.
- Except for certain body parts such as the chest and hip circles.
- The difference in dimensions between women and men can be said to be quite significant, so it is important to group measurements through gender.



## ETHNIC / RACIAL

Every ethnic or ethnic group will have physical characteristics that will differ from one another.

For example, Javanese and Papuans have a marked difference in their body size.

Where Javanese tend to have short bodies, and Papuans have bigger and taller bodies.

Or for example, Indonesians and Europeans have different bodies. Both body posture and skin color.

This then determines how the data results are needed.



# BODY POSTURE AND POSITION

Different body sizes will be affected by the position of the body at the time of going to perform certain activities, namely structural and functional body dimensions.

The standard position of the body when performing dynamic movements where the movement must be taken into consideration when anthropometric data is adjusted



# CURRENT APPLICATIONS OF ANTHROPOMETRY

- While physical anthropologists and criminologists continue to use anthropometric measurements in the study of human evolution through the comparison of novel fossil remains to archived specimens and forensics, respectively, current applications have extended to:
  - a. Industrial design and architecture (e.g., vehicle seating and cockpits)
  - b. Clothing (e.g., military uniforms)
  - c. Ergonomics (e.g., seating)
  - d. Medicine (e.g., nutrition, aging, obesity, sports science, and diabetes)
- In these industries, anthropometric data is invaluable to the optimization of various products and observing the changes which occur in response to various lifestyle, genetic, and ethnic factors.





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Thank You