



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**  
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A++’ Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## **DEPARTMENT OF AGRICULTURAL ENGINEERING**

### **UNIT II - ANTHROPOMETRY**

#### **TOPIC : INTRODUCTION**





# ERGONOMICS

The scientific study of the relationship between a person and his/her working environment, which includes ambient conditions, tools & materials, methods of work and organization of work.





# EQUIPMENT/WORKPLACE DESIGN

**Dimensions of any tool/equipment** - data of body dimensions of the users

**Anthropometry** - ergonomics which deals with body measurements

There is large variation in body sizes between individuals, and genders should be able to use.

**Design equipment/workplaces** -90% of the user population

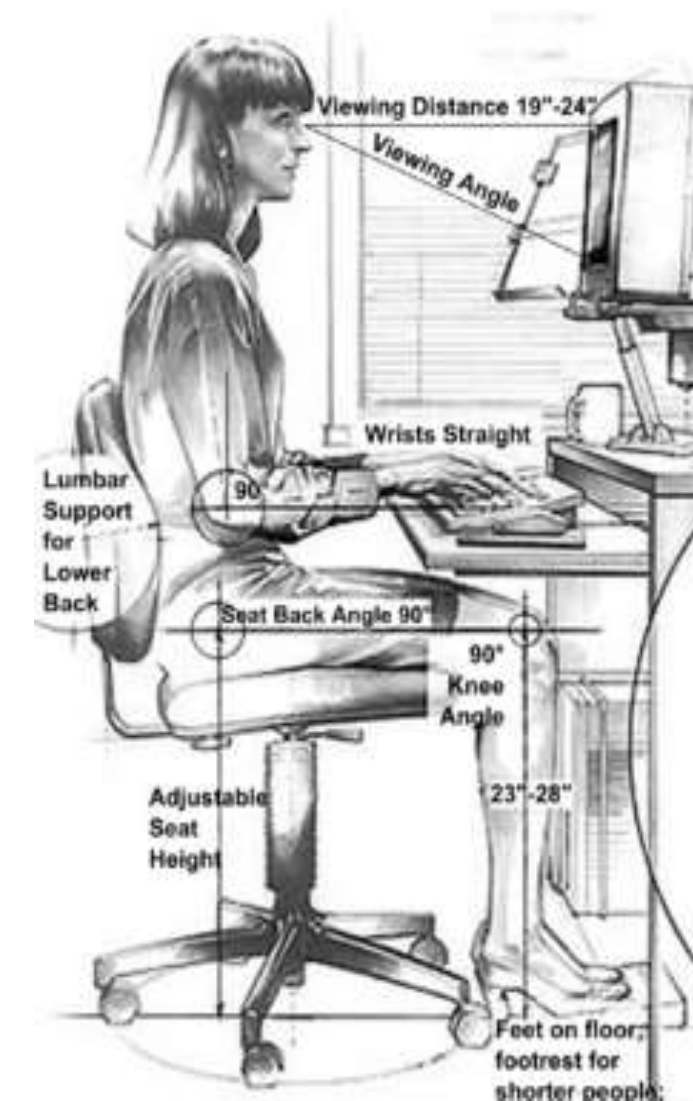


# ANTHROPOMETRY

**Anthropometry** :Science that deals with the measurement of size, weight and proportions of the human body.

**Engineering anthropometry** is an effort to apply such data to equipment and workplace design to enhance the efficiency, safety, and comfort of the operator.

**Traditionally anthropometry** is considered as measurement of body dimensions whereas engineering anthropometry involves bio-mechanics and thus, includes measurement of human strength also.





# ANTHROPOMETRY

- ✓ Measurement of the human individual
- ✓ Involves the systematic measurement of the physical properties of the human body, primarily dimensional descriptors of body size and shape
- ✓ Important role in industrial design, clothing design, ergonomics and architecture.



# ANTHROPOMETRY AND DESIGN OF MACHINERY



- Enormous variation in body size between individuals, genders and races
- Not enough, as a rule, to design a work place to suit an average person
- Not usually possible to design work places to suit the tallest or shortest workers
- One has to be content by meeting the requirements of the majority i.e., 90% of the population (5th and 95th percentile for the particular dimension).
- The body dimensions included stature, sitting height, weight and few other dimensions



# ANTHROPOMETRIC DATA OF INDIAN AGRICULTURAL WORKERS



- Pandey (1970)
- Sen et al. (1977)
- Yadav et al. (1997)
- Gupta et al. (1983)
- Vatsa et al. (2000)



## ANTHROPOMETRIC SURVEY OF INDIAN AGRICULTURAL WORKERS

- Identification of body dimensions and strength parameters useful in farm equipment design
- Finalization of research design and methodology for data collection
  - Collection of data through cooperating centre of AICRP on ESA and State Agricultural Universities/ research organizations through adhoc research schemes
- Compilation of data and building up a data bank
  - Analysis and presentation of data for use of research engineers/farm machinery industry/other interested groups (mean, standard deviation, 5th percentile and 95th percentile values)





## REFERENCES

- ❖ Khurdal, J.K., Aware, V.V., Pagarkar, A.U., Shahare, P.U., Potdar, R.R. and Aware, S.V. 2022. Occupational health hazards associated with fish dressing operation: A case study of Ratnagiri fishing harbour. Technology enabled ergonomic design: Proceedings of HWWE 2020.
- ❖ Pagarkar A.U., Shekh, S.M., Aware, V.V., Shirsat, N.A. and Patil, S.V. 2014. Studies on performance of Finger coats, medical gloves and surgical gloves on women workers for fish dressing operation in sea food processing industries. Ecology, Environment and Conservation, Supplement Issue, December, pp 429-433.
- ❖ Shaikh, S.M., Pagarkar, A.U., Aware, V.V. and Kulkarni, G.N. 2016. Occupational health hazards in seafood industries. National Conference on “Recent advances in science and technology” held on 17th -18th Feb. at Ratnagiri (MS) pp 470-474



Thank You