



# **SNS COLLEGE OF TECHNOLOGY**

**An Autonomous Institution  
Coimbatore - 35**

Accredited by NBA – AICTE and Accredited by NACC – UGC with 'A+ Grade  
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

## **DEPARTMENT OF AGRICULTURE ENGINEERING**

**19AGT201 – SURVEYING AND LEVELING**

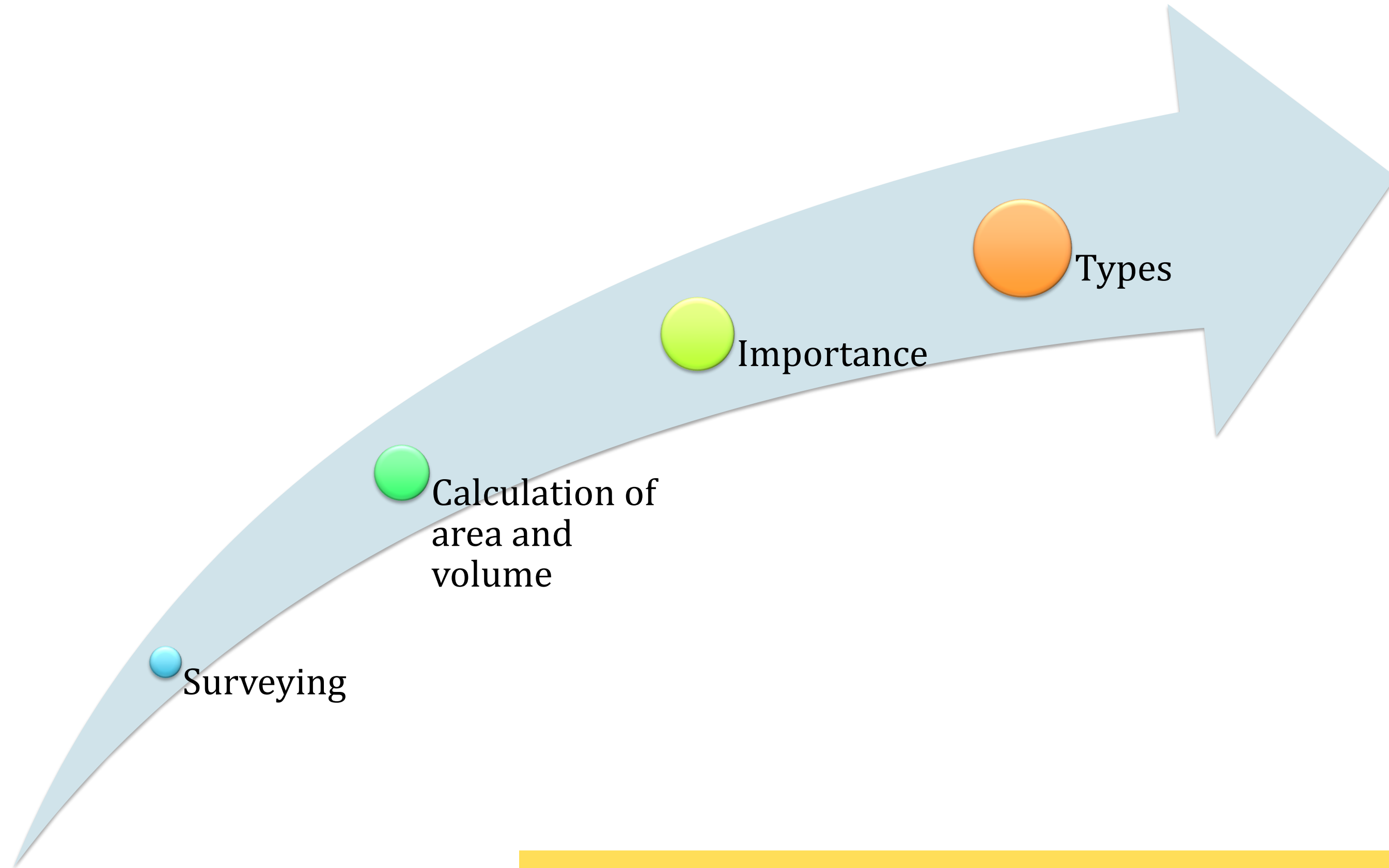
**II – YEAR III SEMESTER**

**UNIT 3 – COMPUTATION OF AREA AND VOLUME**

**TOPIC 2 – MID ORDINATE RULE**



# Last Class Review





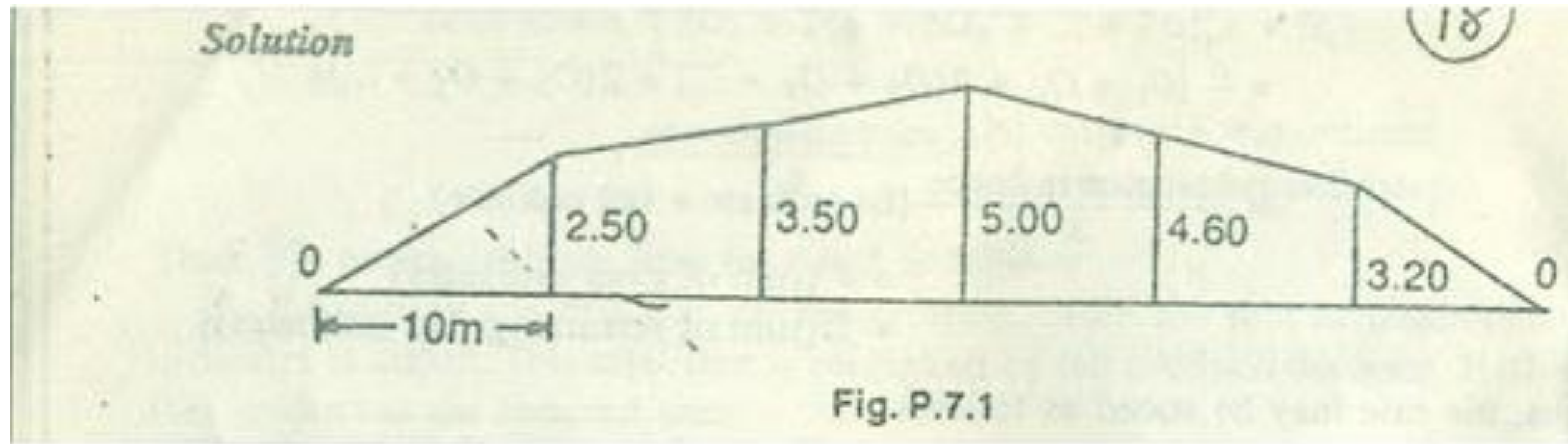
# States!!!

- ❖ The rule states that if the sum of all the ordinates taken at midpoints of each division multiplied by the length of the base line having the ordinates (9 divided by number of equal parts)..





# Mid Ordinate Rule





# Mid Ordinate Rule

- ❖ Let  $O_1, O_2, O_3, O_4, \dots, O_n$  = ordinates at equal intervals
- ❖  $l$  = length of base line
- ❖  $d$  = common distance between ordinates
- ❖  $h_1, h_2, \dots, h_n$  = mid-ordinates





# Mid Ordinate Rule



$$\begin{aligned} \text{Area of plot} &= \frac{h_1 * d + h_2 * d + \dots + h_n * d}{d} \\ &= d (h_1 + h_2 + \dots + h_n) \end{aligned}$$

Area = common distance\* sum of mid-ordinates



# Assessment



- **What are the methods of determining area**





# Problem



The following offsets were taken from a chain line to an irregular boundary line at an interval of 10 m:

0, 2.50, 3.50, 5.00, 4.60, 3.20, 0 m

Compute the area between the chain line, the irregular boundary line and the end of offsets by:

a) mid ordinate rule





# Problem

$$h_1 = \frac{0 + 2.50}{2} = 1.25 \text{ m}$$

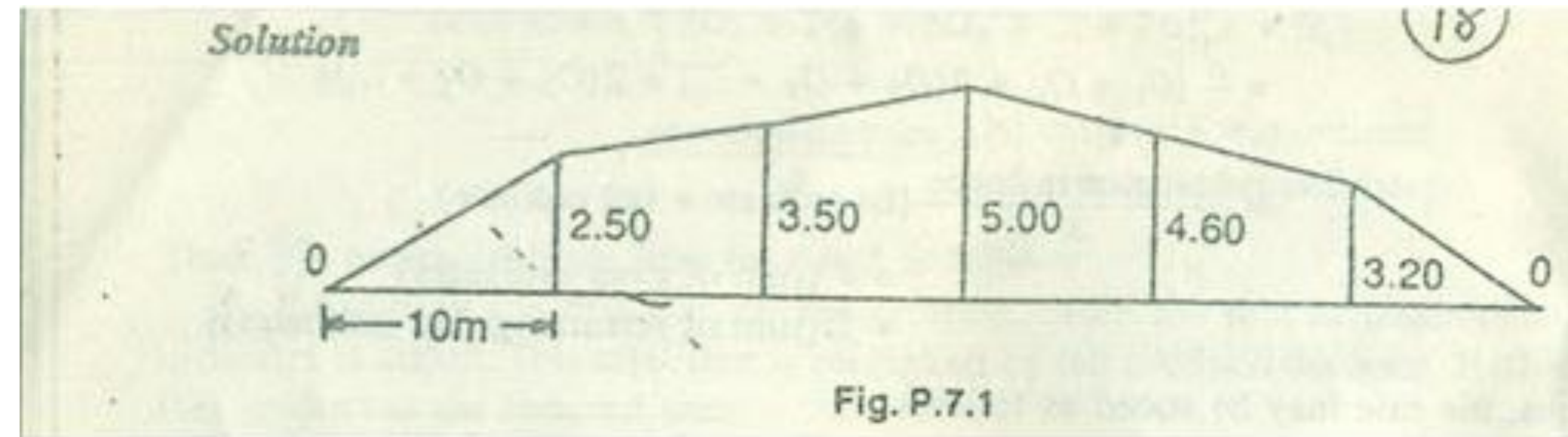
$$h_2 = \frac{2.50 + 3.50}{2} = 3.00 \text{ m}$$

$$h_3 = \frac{3.50 + 5.00}{2} = 4.25 \text{ m}$$

$$h_4 = \frac{5.00 + 4.60}{2} = 4.80 \text{ m}$$

$$h_5 = \frac{4.60 + 3.20}{2} = 3.90 \text{ m}$$

$$h_6 = \frac{3.20 + 0}{2} = 1.60 \text{ m}$$



$$\begin{aligned} \text{Required area} &= 10(1.25 + 3.00 + 4.25 + 3.90 + 1.60) \\ &= 10 * 18.80 = 188 \text{ m}^2 \end{aligned}$$



# Reference Videos

Calculation of area from offset

mid ordinate Q On

$d$   $d$   $d$   $d$

$nd$



**See You at Next Class!!!!**